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J. F. DOBSON, M.S. LOND., F.R.C.S. ENG.,
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(*From the Anatomical Department of the University of Leeds.*)

THERE is no clear evidence that the method devised by Gerota for the injection of lymphatic vessels and glands has received much attention in this country. We have been engaged during the last 18 months in the preparation of specimens by this method and this paper is based on the examination of 30 stomachs injected in this way. We have followed closely the directions given by Gerota but substituted a metal for a glass needle at an early stage of the investigation. The method is most simple in theory, but the practice of injection bristles with difficulties. It fact, the number of specimens which we injected, more or less successfully, is only a minority of the specimens we attempted to inject.

The proper appreciation of the arrangement of the lymphatic glands and vessels of the stomach depends largely on a knowledge of the disposition of the blood-vessels of the organ. The areas drained by the lymph vessels are found to correspond, quite closely, with the areas supplied by the arteries, and the course of the vessels beyond the stomach is not in any great degree dissimilar to the course of the arteries and veins; sometimes, however, it is an artery and sometimes a vein which pilots the lymph vessel. This observation holds good for the vessels up to their termination in the glands; the efferents of the glands pursue paths independent of blood-vessels, as their destination is the receptaculum chyli.

The coronary artery, arising from the cœliac axis, curves upwards and forwards in the falx coronaria to the cardiac end of the lesser curvature. Here it divides into an ascending and a descending branch, the former supplying the œsophagus and, by branches which pass in front of and behind the cardia, the fundus of the stomach as far as its summit, the latter curving downwards in the attachment of the gastro-hepatic omentum and supplying the anterior and posterior walls as far as the pyloric canal. The branches of the coronary artery ramify in the wall of the stomach as far as a line drawn from the apex of the fundus to a point midway between the upper and lower borders of the pylorus, along the junction of the lower and middle thirds of the area between the curvatures.

The splenic artery supplies the stomach by the vasa brevia and the left gastro-epiploic artery. The first vas breve is given off from the splenic trunk about midway between the cœliac axis and the spleen; it ascends behind the lesser sac of peritoneum and curves forwards over its summit to the stomach. Other vasa brevia are given off irregularly as the artery proceeds to the left, and several spring in company with the left gastro-epiploic from the termination of the artery at the hilum of the spleen. These pass to the greater curvature in the lower and more accessible portion of the omentum. The left gastro-epiploic artery reaches as far as the middle of the greater curvature.

The hepatic artery pursues a horizontal course along the upper border of the neck and head of the pancreas. It gives off the small pyloric artery to the upper portion of the pyloric canal and the gastro-duodenal artery which divides into the right gastro-epiploic and the superior pancreatico-duodenal. The right gastro-epiploic artery passes to the left as far as the middle of the greater curvature and supplies the lower third of the corresponding portion of the stomach.

The lymphatic system of the stomach is even more complicated than either its arterial or venous systems, and the numerous gland groups present great difficulties to the describer, not on account of a want of definite position but because it is not an easy matter to find a suitable name for each gland group. As in other organs, the glands which receive the lymph vessels from the stomach are associated with the arteries which supply the organ. A close examination of our specimens has shown that there is an unexpected connexion between the lymph vessels of the stomach and glands which seem from their position to be totally unconnected with it. This compels us to drag into our description not only those glands which are usually described as concerned with the stomach but also the mesenteric and lumbar glands and the glands surrounding the ductus choledochus communis. With the exception of the glands in contact with the stomach all these groups are termini for the lymph vessels of other organs such as the liver, spleen, pancreas, and duodenum.

The gland groups may be named: (1) Lower coronary; (2) upper coronary; (3) right para-cardial; (4) left para-cardial; (5) posterior para-cardial; (6) splenic; (7) right gastro-epiploic; (8) sub-pyloric; (9) supra-pyloric; and (10) supra-pancreatic. The lower coronary, paracardial, supra-pyloric, right gastro-epiploic, and splenic glands are primary glands, receiving vessels directly from the wall of the stomach. The upper coronary, sub-pyloric, right and left supra-pancreatic groups are secondary inasmuch as they receive efferent vessels from the primary glands, but are also primary as they also receive vessels directly from the stomach. The middle supra-pancreatic, mesenteric, and lumbar groups are entirely secondary, receiving only efferents of more intimate gland groups.

We have now to give the topographical anatomy of the various gland groups.

The glands associated with the coronary artery.—Along the descending branches of the coronary artery, between the layers of the gastro-hepatic omentum, close to its attachment to the lesser curvature, are found numerous glands. Although the greater number lie close to the artery it is not uncommon to find small glands which have insinuated themselves under the peritoneum beyond the omental attachment and lie in intimate contact with the muscular wall or even imbedded in it. The glands are rarely seen to the right of a point midway between the œsophageal and the pyloric orifices. They increase in number and size as the cardia is approached, often forming a distinct mass on the right side of the cardia at the commencement of the descending coronary branch. This chain of glands we have termed the lower coronary chain.

The glands which lie in the falx coronaria with the stem of the coronary artery we indicate by the name of upper coronary. They are numerous and so disposed that members of the group are seen on both sides of the falx. The chain is directly continuous with the inferior coronary chain and it is for convenience in dealing with the afferent vessels and to emphasise certain points in their disposition that we distinguish two groups.

The para-cardial glands are outlying members of the coronary chain, disposed in a manner comparable to a chain of beads around the neck of the stomach. One or two glands (right para-cardial) are constantly found in front of the right side of the cardia and from their position and the arrangement of their efferent vessels are members of the lower coronary group. One or more, sometimes as many as seven, small glands are situated on the left side of the cardia. These are the left para-cardial glands. On the back of the cardia, sometimes under the peritoneum and sometimes on the small bare area, between the lesser and the greater sacs, lie one or two small glands, which we call the posterior para-cardial. They are not so constant in their presence as the right and left para-cardial glands, but as their efferents join the upper coronary glands and they lie only a very short distance from those glands seen on the left side of the falx, it is probable that when absent they are represented by a member of this group. This opinion is strengthened by the fact that the vessels which they intercept are, in their absence, afferents of the upper coronary glands.

If we follow the upper coronary glands backwards we find that they are continuous with the glands which lie at the upper border of the pancreas around the cœliac axis. As the name cœliac glands is used to define loosely the row of glands lying along the upper border of the pancreas and as

[1] The Arris and Gale Lectures delivered at the Royal College of Surgeons of England on Feb. 18th and 20th were based on the work recorded in this and a subsequent lecture.

this row of glands receives vessels from distinct parts of the stomach, we have found it necessary for exact description to divide these glands into three groups—middle supra-pancreatic around the cœliac axis, left supra-pancreatic on the stem of the splenic artery, and right supra-pancreatic on the stem of the hepatic artery. It will be more evident, when we describe the afferent vessels of these glands, why we have elected to divide this chain of glands into groups, to the continuity of which we wish at the same time to give prominence.

FIG. 1.

Lymphatics of the stomach. Anterior view.

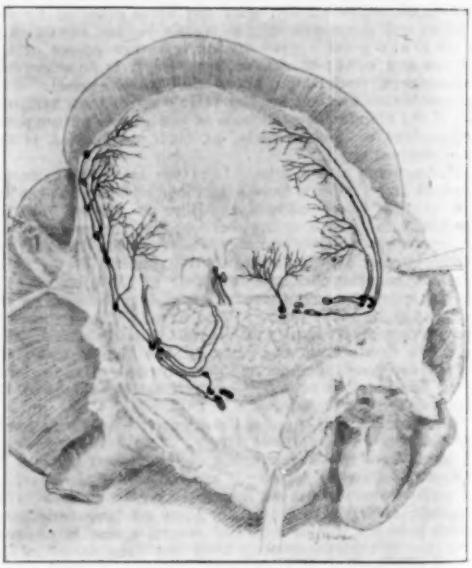
The chain of glands associated with the splenic artery is more simple in its arrangement and of less practical importance than the other chains. The first glands met with are a few in the gastro-splenic omentum. They are inconstant and rarely number more than two. We have met with a gland (Specimen 100) lying in the omentum close to the stomach, but they are usually situated close to or in the splenic attachment. In many cases no gland appears to exist in the omentum. It is more common to find that the splenic glands are in close contact with the pancreas on the upper aspect of the tail, while sometimes a gland may lie at the lower border of the tail (Specimen 35). These glands are all associated with the terminal branches of the splenic artery. On the stem of the artery at the upper border of the pancreas lie a variable number of glands which we have called the left supra-pancreatic group. They are continuous to the right with the middle supra-pancreatic group around the cœliac axis.

The glands associated with the hepatic artery and its branches fall into several groups. Along the right gastro-epiploic artery, in the gastro-colic omentum, is found a chain of small glands, usually from four to seven in number. They are generally situated below the artery, and being thus deprived of their mechanical support they show a tendency to stray down between the layers of the omentum; this displacement is more often seen in adult than in fœtal specimens. We have never found any glands of this chain to extend to the left beyond the middle of the greater curvature; to the right they do not extend quite to the pylorus. Without exception their efferents end in the next group.

The sub-pyloric group.—The only convenient name which we can apply to this group does not suggest its exact position. The group is situated to the right of the pylorus, in the angle between the first and second parts of the duodenum, in front of the head of the pancreas in close relation to the bifurcation of the gastro-duodenal artery, covered in front by the peritoneum of the greater sac and having the lesser sac to its inner side. It consists of four or five glands. It is a secondary group for the pre-pyloric region but primary for the pylorus and duodenum. As it is associated with the gastro-duodenal artery we include it in the hepatic artery chain, but, as we shall show later, its efferents have little or no connexion with the glands on the trunk of the hepatic artery.

It is uncommon to meet with glands along the course of the pyloric artery. Sometimes a small gland is seen on the artery immediately above the duodenum, and perhaps more frequently a small gland is met with in the lesser omentum some little distance above the pylorus. These glands are named the supra-pyloric glands; when present they intercept only one or two pyloric lymphatic vessels. The right supra-pancreatic glands lie along the trunk of the hepatic artery as it courses to the right at the upper border of the pancreas. They are constant and are the largest and most easily observed of the glands above the pancreas. Their large comparative size in the fœtus is doubtless explained by the fact that they receive a large part of the lymph from the liver. In addition to the groups of glands which are closely connected with the stomach, three other groups require mention; they are the biliary, superior mesenteric, and lumbar glands. The biliary glands form a well-marked chain lying along the common bile-duct. The uppermost member of the chain is the cystic gland. In the free edge of the omentum the glands are few, but behind the meeting of the second part of the duodenum and the pancreas they are numerous and large. Around the stem of the superior mesenteric artery lie several large glands which receive the lymph from the mesenteric, ileo-colic, and meso-colic glands (the group which in lower animals is sometimes termed the pancreas of Aselli). We shall have occasion to show that they are intimately connected by more than one path with glands which receive lymphatics of the stomach.

FIG. 2.



Lymphatics of the stomach. The organ has been lifted up.

The lumbar glands.—It is not necessary to describe these glands in detail, it is sufficient to mention that they are arranged irregularly around the abdominal aorta and the inferior vena cava.

The lymph vessels in the walls of the stomach are arranged in an intricate network which has received the attention of many histologists and has been well described by Cuneo and Delamare.[2] The short account we shall give is merely sufficient to allow us to refer to some observations we have

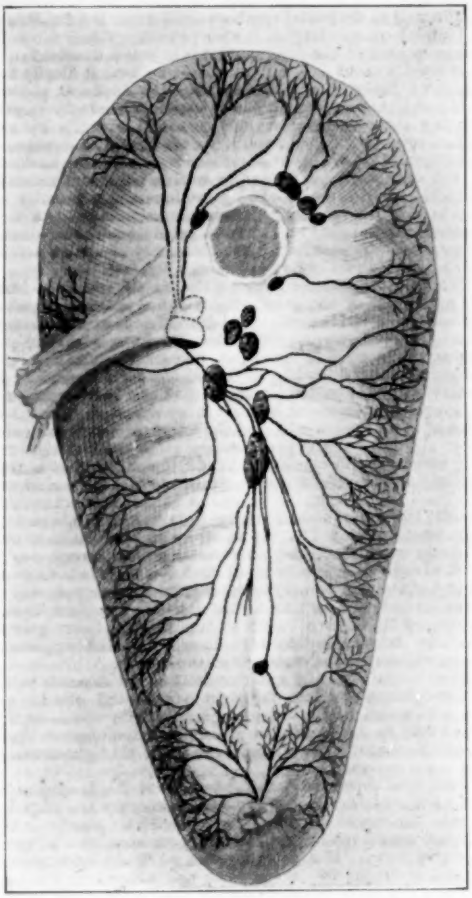
[2] Cuneo and Delamare: Les Lymphatiques de l'Estomac, Journal de l'Anatomie et de la Physiologie, 1900, xxxvi., No. 4, p. 393.

made while injecting our specimens. The vessels arise by blind ends in the subepithelial interglandular tissue. They pass outwards between the glands and after a very short independent course they communicate with each other to form a peri-glandular plexus. At the bases of the glands they fall perpendicularly into the sub-glandular plexus which lies between the glands and the muscularis mucosæ. Short and wide vessels arise from this plexus, pierce the muscularis mucosæ, and break up on its outer surface to form the submucous plexus. The large vessels which drain this plexus pass outwards through the muscular coats, communicating with the network among the muscular fibres, and open into the subserous plexus. They come to the surface over the whole extent of the stomach, but are mostly to be seen along the curvatures. The vessels of the muscular coat form a plexus which is fine in the inner layer and coarser in the outer layer; superficially they open into the subserous plexus. From the subserous plexus the valved collecting vessels radiate to the curvatures of the stomach, gradually increasing in size, to enter the omenta.

The presence of valves, which gives the injected collecting vessels a beaded appearance, renders it impossible to inject the plexuses by inserting the needle into a collecting trunk. In the Hunterian collection in Glasgow there are several specimens of portions of the intestinal canal of the turtle injected by Hewson from vessels in the mesentery, but this is, so far as we know, the only animal in which the valves of the vessels of the alimentary canal can be forced by injection. If the coloured fluid is injected into the plexus itself it is at once demonstrated that the vessels in the thickness of the stomach wall possess no valves and that there is complete continuity of the lymph vascular network throughout the whole thickness and extent of the walls of the organ. If the needle point is passed deeply through the muscular coats it enters the submucous plexus, into which the fluid passes readily; favoured by the loose texture of the submucous coat the fluid spreads widely in the plexus; the fibres of the muscular coats offer some resistance to its escape by the vessels passing to the surface. As the injection is continued, injected vessels spring to the surface and fill the subserous network, not only at the curvatures, where they seem to be of the largest size, but at points on the surface of the organ far removed from the puncture. This phenomenon is well seen in young specimens, particularly if the needle is inserted into the thick-walled pyloric end. The extent of the area which may become injected from any single puncture cannot be determined. If punctures are made into the submucous plexus at various points and the flow of injection carefully watched, it soon becomes obvious to the observer that any lines of demarcation between the areas drained into different gland groups are arbitrary. Given a slight check to the outflow through one set of collectors the injection mass will pass readily out by another set. If the needle is passed into the thickness of the muscular coat the results are always disappointing. There is usually a mere extravasation among the muscular fibres which may extend to any distance without a single vessel becoming injected. We may mention that this seems to us a not unreasonable argument in favour of the view that the lymphatic system is a closed one, as a fluid which can enter into the finest capillaries would surely find its way from the areolar spaces into the vessels if any openings existed. The scanty nature of the muscular plexus and the obstruction offered by the thick close layer of muscular fibres probably explain the poor result.

If the subserous network is punctured no limit can be set to the area of plexus which may become filled. In fœtal specimens it is possible to inject from one puncture the whole extent of one surface of the stomach and part of the other. As a rule, only a limited area shows the injected network, as the fluid finds easy egress by way of the collecting vessels, but when these vessels are filled or obstructed the fluid passes into the areas of neighbouring collectors without any difficulty. It is therefore impossible to speak with any accuracy of the areas drained by groups of collectors into different gland groups. The idea of any sharp line of demarcation between areas is destroyed by watching the flow of injection mass through the network. When, however, we see that from a puncture the collecting vessels running in one direction become filled before those running in another direction we are able, by a series of punctures, to determine what may be regarded as the normal watershed separating the lymph running in different directions. A line separating the lymph vessels running to the lesser and the greater curvatures may be drawn from the summit of the fundus downwards to the pyloric ring along the junction of the middle and lower thirds of the distance between the curvatures. Properly these two so-called areas should be regarded as being separated by a broad and neutral intermediate zone. There is no need to divide the upper area into a coronary and a pyloric area, and it is as impossible as it is useless. In the case of the lower area, a point on the greater curvature vertically below the œsophagus may be taken as the point of divergence of the right and left gastro-epiploic currents. The plexus of the lower area shows no indication of the sudden divergence of the two currents which we find at the curvature.

FIG. 3.



Lymphatics of the stomach seen from above. Drawn on a larger scale.

Though the subserous plexus becomes injected by vessels issuing from a well-injected submucous plexus we do not find that the fluid passes in the reverse direction. This is not due to the presence of valves but to the fact that naturally it does not travel along the vessels which are coming through the muscular coat when a much easier path by way of its own collecting vessels is open. There is complete continuity of the lymph vascular network of the stomach wall and the independence of the muscular network, described by Cuneo and Delamare, is only relative, due to the nature of the tissue in which it lies. It is clear that so long as the subserous and the submucous plexuses can empty themselves readily into their collecting vessels the muscular network is not likely to be injected from either side.

The vessels at the cardiac end of the stomach are directly continuous with those of the œsophagus. There has been

some doubt expressed as to the presence of a similar continuity of the gastric and duodenal plexuses. If an injection is made into the subserous plexus to the left of the pylorus, the injection flows towards the curvatures and the injected area is generally sharply marked off at the pyloric ring. We have noticed that this occurs when there is much extravasation, which may compress the subserous network, but in one of our specimens (No. 72), where there is very little extravasation, the injected area extends for some little distance on to the duodenum. We have no doubt of the direct continuity, but the plexus over the pyloric ring itself is not well marked. In common with other observers, we have been unable to detect any annular vessel acting as a barrier as has been described by Most.[3] Many of the collecting vessels from the pyloric subserous network run downwards over the duodenum to reach the sub-pyloric glands, and as they must receive vessels from the duodenum an indirect communication is also present. When the submucous plexus of the pyloric canal is injected the fluid runs most readily to the left, but at the same time it fills up the plexus of the ring and spreads into the duodenal plexus. This is evident at the time the injection is made by vessels bursting through the muscular coat and running on the surface towards the upper and lower borders of the duodenum (Specimen 31). We have seen these vessels on both surfaces of the duodenum but in larger numbers on the posterior surface. Since there is such a well-marked continuity of gastric and duodenal submucous plexus, and since a free communication exists between the submucous and subserous plexuses, the question of direct continuity of the subserous plexuses is of little or no importance.

The collecting vessels which arise in the plexuses from the upper part of the area to the right of the œsophagus as far as the pyloric canal, ascend to the lesser curvature. Those from the pyloric end of the area have a long oblique course, the succeeding vessels, as we pass from right to left, becoming more vertical in direction. The great majority of these vessels end in the glands of the lower coronary group. It is a point upon which we cannot lay too much stress, that some of these vessels slip past the lower coronary group and enter glands of the upper coronary group as it lies in the falx coronaria (Specimens 31, 77, 83, and 89). This is true not only of the vessels arising from the left portion of the curvature and anterior and posterior surfaces (Specimens 83 and 89) but also of vessels arising from the pyloric extremity (Specimens 31 and 77). In small specimens this condition is easily overlooked, and in dissecting these specimens it must always be borne in mind that vessels which seem to enter a gland may be only in contact with it on their way to more distant glands. As in the case of the appendix and cæcum we find that a vessel arising from the lower part of the area may reach the highest gland of the uppermost group which receives vessels from the area.

The vessels from the anterior wall of the stomach below the œsophagus run into the right para-cardial glands, but the area which in one case may send all its vessels to this gland may in others furnish afferents to the lower or upper coronary groups. The efferent vessels of this gland run to the upper coronary group.

From the upper and anterior aspects of the fundus as far out as the summit and often well down over the body the vessels converge to the left paracardial glands. The efferent vessels run behind the cardia and end in the upper coronary group. If a posterior para-cardial gland is present it will intercept one or more of the efferents. We have occasionally seen efferent vessels running in front of the cardia from the left to the right para-cardial glands, but this path does not seem to be at all constant. Here again we may see vessels from the fundus running past the left para-cardial glands to end in the upper coronary group (Specimen 70). From the posterior surface of the fundus vessels run to the posterior para-cardial gland. If this is absent they enter the upper coronary glands. Occasionally we have seen a vessel from the summit and even from the anterior surface of the fundus, ending in the posterior para-cardial gland (Specimen 8). The efferents of this gland run to the upper coronary group. The upper coronary glands receive, therefore, the efferents of the lower coronary glands and of all the para-cardial glands, but in addition vessels direct from any part of the area draining into these glands, no matter how distant.

The vessels which enter the gastro-splenic omentum are derived from both surfaces of the stomach—from the summit of the fundus to a point on the greater curvature vertically below the œsophagus. During the injection they are apt to become kinked as they lie in the loose omentum, by the handling of the specimen and the injection often fails to reach the glands. The lower vessels which accompany the left gastro-epiploic artery and the lower vasa brevia run to the hilum of the spleen and end in the splenic glands above and occasionally below the tail of the pancreas. One or two vessels may be intercepted by small glands in the omentum but this is uncommon. The upper vessels from the left side of the fundus sweep downwards over the summit of the lesser bag in the upper part of the omentum and reach the left supra-pancreatic glands. The efferent vessels of the splenic glands pass inwards to the left supra-pancreatic glands along the upper border of the pancreas. If any glands lie at the lower border of the tail of the organ their efferents run obliquely upwards over the body. The efferents of the left supra-pancreatic glands run to the middle supra-pancreatic group.

The vessels from the right portion of the greater curvature as far as the pyloric canal run downwards into the great omentum; turning to the right they end in the right gastro-epiploic glands. These glands send their efferent vessels without exception to the sub-pyloric group. The vessels from the lower part of the pyloric canal pass obliquely to the right, some of them lying on the duodenum, to enter the sub-pyloric glands. The efferent vessels of these glands are noteworthy in their arrangement. Many curve downwards in front of the head of the pancreas and end in the superior mesenteric glands. Others run inwards for a short distance and on reaching the lower border of the neck of the pancreas turn upwards and run obliquely over the anterior surface of the body of the organ to the middle supra-pancreatic glands. There are usually two such vessels and sometimes one of them enters a right supra-pancreatic gland. In two specimens only have we seen the path which is usually regarded as normal—viz., that taken by vessels which ascend behind the duodenum with the gastro-duodenal artery to reach the right supra-pancreatic glands. (Specimens 81 and 60.)

The upper part of the pyloric canal presents a most interesting arrangement of collecting vessels. We have already said that vessels pass upwards from this part to the coronary groups. We find that there are two other sets of vessels. One set runs upwards into the lesser omentum, possibly having one or two vessels intercepted by a supra-pyloric gland; the efferents of this gland, together with the uninterrupted vessels, turn downwards and end in the right supra-pancreatic glands on the stem of the hepatic artery. The other set, consisting usually of only one vessel, separates itself from the other vessels, turns to the right behind the duodenum to a gland lying behind the head of the pancreas on the lower end of the common bile-duct, a gland of the biliary chain. Thus lymph may be carried from the upper border of the pyloric canal to the lower and upper coronary, supra-pyloric, right supra-pancreatic, and biliary groups of glands.

The supra-pancreatic glands send efferents to the receptaculum chyli. They communicate freely behind the pancreas with the superior mesenteric glands. Our specimens do not inform us with certainty whether the vessels behind the pancreas in all cases run from the supra-pancreatic to the superior mesenteric glands. In some cases we have seen evidences of spread in the reverse direction. When the supra-pancreatic glands are fully injected we have found a vessel descending from the middle group behind the pancreas and duodenum to glands of the lumbar group. In three cases the gland injected lay just below the left renal vessels; in another it was situated between the aorta and vena cava, at a still lower level.

The description of the lymphatic system of the stomach is based solely on the information derived from our own specimens. We do not propose to review the work of all the observers who have furnished the statements in our text-books, but in recent years Cuneo and Delamare, Most, and Polya and von Navratil[4] have published observations which we shall compare with ours. The coronary glands do not admit any difference of opinion as to their disposition and constant presence, but in the case of the outlying members

[3] Most: Ueber die Lymphgefasse und die Regionaren Lymphdrüsen des Magens, &c., Archiv für Klinische Chirurgie, Band lix., Heft 1, p. 175.

[4] Polya and von Navratil: Untersuchung über die Lymphbahnen des Wurmfortsatzes und des Magens, Deutsche Zeitschrift für Chirurgie, 1903, lxix., p. 421.

which are disposed around the cardia we differ from Cuneo and Delamare, who say that the præcardiac and retro-cardiac glands are constant and that the gland on the left side of the cardia is usually absent. They were only successful in injecting these glands on three occasions, however. We find that the right para-cardial is constant, the left para-cardial only occasionally absent, and the posterior para-cardial more frequently absent as it is often included in the upper coronary group. From their drawings it appears to us that their præcardiac group may be our left para-cardial. Polya and von Navratil speak of these glands as right and left juxta-cardiac and retro-cardiac; they appear to include in the right juxta-cardiac group some of the glands of the lower coronary chain, but their left group is the same as ours and they have often seen it. No observer, so far as we know, has detected vessels ascending from the pyloric canal to reach the upper coronary glands in the falx coronaria, near the upper border of the pancreas. Further reference will be made to the practical importance of this fact.

Cuneo and Delamare have never seen glands in the gastro-splenic omentum, and Polya and von Navratil also note their absence. Certain of our specimens (Nos. 72 and 87) show small glands in this omentum close to the spleen, and in one case a gland is to be seen close to the stomach; their occasional presence therefore cannot be denied. The disposition of glands at the hilum of the spleen is so variable that we cannot lay any stress on the condition sometimes seen of a gland lying below the tail of the pancreas, the efferents of which course obliquely over the body of the organ to the supra-pancreatic glands. Polya and von Navratil demonstrate the primary character of the left supra-pancreatic glands, an observation which we are able to confirm. This fact has not been noted by Cuneo and Delamare.

The nomenclature of the glands associated with the hepatic artery has given rise to much confusion. Cuneo and Delamare apply the term sub-pyloric to those glands which lie in the great omentum below the pyloric portion of the stomach. Polya and von Navratil include in this term the glands which lie in the angle below the first part of the duodenum. As there is a distinct interval between these two groups of glands we have named the first group the right gastro-epiploic and the second the sub-pyloric. When we read the description of the retro-pyloric glands given by Cuneo and Delamare we are at a loss to understand their meaning. We do not find glands, as they describe them, on the gastro-duodenal artery as it descends behind the duodenum; their retro-pyloric group appears to us to be the group we have termed the sub-pyloric. As Polya and von Navratil use the term retro-pyloric to indicate the glands at the upper border of the pancreas on the trunk of the hepatic artery we have avoided the word. In both papers the efferent vessels of the sub-pyloric glands are described as ascending with the gastro-duodenal artery to the glands on the hepatic artery (right supra-pancreatic). We have seen these vessels only on two occasions. Cuneo and Delamare mention the mesenteric path from the sub-pyloric glands as having been observed in one case; Polya and von Navratil have observed it frequently. We believe that it is constant, as it may be observed in any well-injected specimen. The vessels which pass obliquely over the body of the pancreas from the sub-pyloric glands are neither figured nor described by Cuneo and Delamare; Polya and von Navratil have demonstrated these vessels. We have seen them frequently and believe them to be constant. We have been unable to find any evidence that the vessel which arises from the upper border of the pylorus and descends behind the duodenum to a gland of the biliary chain has ever been described. The chain of glands is well shown by Cuneo, but no mention is made of any vessels reaching it from the stomach. In one of our early specimens we detected the presence of a vessel descending from the supra-pancreatic glands to a gland of the lumbar group. Having our attention directed to it in this way and finding that Polya and von Navratil had seen it in one of their specimens we looked for and found it in cases where the supra-pancreatic glands are fully injected. Cuneo and Delamare have not recognised this path.

Exact knowledge of the lymphatic connexions of the stomach is of great practical importance, and during recent years a good deal of attention has been given to the subject. Practically our knowledge of it is recent and dates from the appearance of the memorable work of Cuneo.[5] His researches into the anatomy of the lymphatics of the stomach and their importance in view of the spread of malignant disease have excited general attention and have resulted in considerable modifications in operative technique. The involvement of the lymphatic glands of the stomach in conditions other than malignant is a subject of which little is known. It is recognised that the glands may be enlarged and indurated in cases of ulcer of the stomach simulating malignant disease to such an extent that errors in diagnosis and treatment have not infrequently resulted. Whether the affection of the glands in such cases ever proceeds beyond a chronic inflammation is difficult to say. It is possible that suppuration may occur in these glands in cases of peptic ulcer; this may be an explanation of those occasional cases of subdiaphragmatic abscess which arise during the course of this disease and which are usually attributed to a subacute or chronic perforation of the stomach. This, however, is mere speculation, though the point may be worthy of investigation. Reference has already been made to the glands in the wall of the stomach observed by Letulle.[6] This writer considers that these glands may not infrequently become diseased and may give rise to such conditions as "tuberculous abscess opening into the stomach," "acute interstitial abscess of the stomach wall," and "fistula and perforation in gastric cancer."

Whatever be the changes in the lymphatic apparatus which occur in the more simple diseases of the stomach, there is no doubt of the importance of their affection in malignant disease. As has already been stated, the brilliant essay by Cuneo contains a most exhaustive examination of this subject. He considers that the lymphatic vessels in the wall of the stomach play a most important part in facilitating the growth of the primary tumour. This is especially so with regard to the well-known tendency of gastric cancer to extend along the lesser curvature from the pylorus. The equally well-known fact of the comparative integrity of the duodenum is not so easily explained by the disposition of the lymphatics. As we have previously pointed out, there is a communication between both the subserous and the submucous plexuses of the stomach and duodenum. It is obvious, therefore, that the duodenum may possibly become invaded from the pylorus by the extension of cancer along either plexus.

The invasion of the lymphatic glands in gastric carcinoma is of the greatest practical interest. This invasion takes place by a process of embolism; cells, or small masses of cells, become detached from the primary growth and are carried along the lymphatic vessels to the corresponding glands. There seems to be no doubt that the emboli are always arrested at the first gland which they reach (the primary gland) and that they do not pass on to a secondary gland until the process of growth in the primary gland has advanced to a marked extent. Cuneo speaks of the affection of the primary glands as "immediate adenopathies" and of the secondary glands as "distant adenopathies." Histological examination of the glands of the stomach in cases of malignant diseases has been made by numerous observers, notably Carle and Fantino, Cuneo,[7] Borrmann,[8] and Lengemann.[9]

Cuneo found that the glands of the lesser curvature were involved in 87 per cent. of cases examined, the glands of the greater curvature in 66 per cent.; he has only seen the retro-pyloric glands (the group we term sub-pyloric) invaded in two cases. He believes that a marked preference is shown towards invasion of the glands of the lesser curvature. Lengemann[10] found that the coronary glands were diseased in 50 per cent. of the cases; the glands along the greater curvature in 37 per cent. and the retro-pyloric glands (the sub-pyloric group) in 60 per cent. A marked divergence of opinion is here shown as to the extent of the invasion of the sub-pyloric group. Anatomical observation would seem to demonstrate the fact that Lengemann's statistics are the most likely to be correct.

Cuneo regards it as essential in every radical gastrectomy completely to remove the diseased glands and that this removal must include all the glands receiving vessels directly from the pyloric portion of the stomach. He

[5] Cuneo: De l'Envahissement du Système Lymphatique dans le Cancer de l'Estomac, Paris, 1900.

[6] Letulle: Ganglions Lymphatiques Pariétaux de l'Estomac, Bulletins et Mémoires de la Société Anatomique de Paris, 1899, pp. 1093–1095.

[7] Loc. cit.

[8] Borrmann: Das Wachstum und die Verbreitungswege des Magencarcinoms, Jena, 1901.

[9] Lengemann: Ueber die Erkrankung der Regionaren Lymphdrüsen bei Krebs der Pars Pylorica des Magens, Verhandlungen der Deutschen Gesellschaft für Chirurgie, 1902, p. 483.

[10] Ibid.

believes that this can be effected by extirpating the glands of the lower coronary chain and the right gastro-epiploic chain (including in these what we have termed the sub-pyloric glands). With this idea he designed the operation which was described for the first time in his monograph. This operation, first performed by Hartmann in France[11] and subsequently by other surgeons, notably Moynihan in this country[12] and Mayo in America,[13] consists in the excision of a large part of the stomach, including the whole of the lesser curvature with the glands there situated, about half the greater curvature with that part of the omentum containing the right gastro-epiploic glands and about an inch of the duodenum. The operation has also designed to include the sub-pyloric group of glands (retro-pyloric of Cuneo); whether this step has been effected in the majority of these operations is questionable. Some divergence of practice has prevailed as to the amount of the greater curvature which should be removed, but the method of Cuneo and Hartmann of placing the line of section at a point vertically below the œsophagus has been generally adopted. An essential step in the operation is the preliminary ligature of the various arteries, coronary, pyloric, gastro-duodenal, and left gastro-epiploic. The coronary artery is ligatured by Cuneo and Hartmann as it lies in the falx coronaria just before its bifurcation. Moynihan, on the other hand, ties the descending branch of the coronary artery at the upper part of the lesser curvature. By this operation Cuneo believes that the first glandular relay of the pyloric portion of the stomach is removed and that if the operation is performed before infection has passed the first relay it is a truly radical measure and may be expected to be definitely curative.

It is an extraordinary thing that both Cuneo and subsequent writers have entirely ignored the possibility of infection spreading along the lymphatics running with the pyloric artery. As we have shown, these vessels, which are fairly numerous and which drain a well-marked area of the pylorus, run directly to the right supra-pancreatic glands lying along the trunk of the hepatic artery. Occasionally one of these vessels is interrupted by a small supra-pyloric gland. Further, as is shown in several of our specimens, one of these vessels frequently runs behind the duodenum to a gland of the biliary chain. Here there is an obvious route by which cancerous emboli from a growth of the pylorus may reach, without any interruption, both the glands at the upper border of the pancreas and those of the biliary chain. Unfortunately no routine histological examination of the state of these glands in gastric carcinoma has been made. Passing now to the coronary chain, Cuneo appears to think, that by removing those glands lying along the lesser curvature (the lower coronary group) all the glands of this chain receiving vessels from the pyloric portion of the stomach will be secured. He states that this group (lower coronary) forms the first relay, while the glands of the falx (upper coronary) form a second relay, the neoplasic elements being arrested for a time in the glands of the first relay. We have shown, however, that vessels may run past these glands (lower coronary) to the glands of the upper coronary group, lying in the deeper part of the falx coronaria, close to the upper border of the pancreas.

The absolute necessity of removing the sub-pyloric group (retro-pyloric of Cuneo), if the operation has any claim to be considered a radical one, is shown by the large number of vessels running from the pylorus directly to this group; this is also borne out by the researches of Lengemann, who found these glands diseased in 60 per cent. of cases examined. As we have previously stated, it appears unlikely that these glands are often secured; Cuneo himself says that their removal is difficult and that they are fortunately frequently absent. We can imagine the difficulty in completely removing them when they are diseased, but we cannot endorse the view that they are frequently absent. Consideration of these points will show, therefore, that the ideal of Cuneo—namely, the removal with the primary growth of the first glandular relay—cannot be realised. This relay includes the lower coronary glands, the upper coronary glands (extending almost to the upper border of the pancreas), the right gastro-epiploic, the sub-pyloric, the right supra-pancreatic, and the biliary glands, many of which are beyond the effective reach of the surgeon. Except as a mere matter of chance no operation for gastric carcinoma can be a radical one when once malignant emboli have commenced to reach the lymphatic glands. The only reason for removing as many of the diseased glands as possible is the hope that once the primary growth and the majority of affected glands have been removed the remaining glands may be able to deal with, and perhaps destroy, the malignant elements they contain; of this process, however, we know little or nothing. If surgery is ever to offer to the subjects of gastric carcinoma the hope of cure by a radical operation it can only do so when a very early diagnosis has been made, when the growth is yet small, and when the embolic process of lymphatic invasion has not yet commenced. The question of the performance of a partial gastrectomy merely as a palliative measure instead of a gastro-enterostomy is not affected by these considerations.

The study of the spread of malignant disease of the stomach to the other groups of abdominal lymph glands is much facilitated by an accurate knowledge of the course of the lymphatic vessels. The groups of glands usually found affected in the late stages of the disease are the glands at the hilum of the liver, the glands around the cœliac axis, the superior mesenteric glands, the biliary glands, the mesocolic glands, and the lumbar glands. There are no direct vessels connecting the stomach or any of the gland groups receiving direct vessels from the stomach with the glands at the hilum of the liver. These glands receive vessels from the liver and transmit them to the right supra-pancreatic and biliary groups. In advanced carcinoma of the stomach they must become diseased either by retrograde infection along their efferent vessels or secondarily to a growth in the liver. The paths by which the middle supra-pancreatic glands are affected can be easily followed: from the coronary groups, the sub-pyloric group, or the splenic group. They transmit efferent vessels not only to the receptaculum chyli but also to the lumbar glands around the aorta and vena cava. It is obvious that these glands may readily become diseased by the direct transmission of cancerous emboli from the middle supra-pancreatic glands. The superior mesenteric glands receive vessels from the sub-pyloric group. This group is frequently diseased and infection will spread readily along its efferent vessels. It is not necessary to assume as it is done by Stevens[14] that the glands lying below the level of the cœliac glands become diseased by means of a process of retrograde infection or secondarily to obstruction of the thoracic duct or to the development of metastases in the liver. There are direct paths as we have shown. The affection of the meso-colic glands is not so readily explained. They may become diseased by retrograde infection from the superior mesenteric glands to which their efferent vessels run; a more likely explanation is that the primary disease has spread from the stomach into the gastro-colic omentum, possibly to the colon or into the meso-colon, thus invading the lymphatic area draining into the meso-colic glands.

The biliary group of glands receive direct vessels from the upper part of the pylorus; by this path they may become affected. There are many interesting problems connected with the dissemination of malignant disease of the stomach by means of the lymphatic system. Unfortunately, our researches do not permit us at present to make any definite statements as to the connexion between the lymphatics of the stomach and the glands of the diaphragmatic groups, of the internal mammary chain, and of the mediastinal groups. We hope that further investigations by means of Gerota's method will enable many obscure points to be made clear.

[11] Hartmann: Chirurgie Gastro-Intestinale, Paris, 1901.
[12] Moynihan: The Operative Treatment of Cancer of the Pyloric Portion of the Stomach, Transactions of the Clinical Society of London, 1902, vol. xxxv.
[13] Mayo: Operations on the Stomach, Annals of Surgery, 1903, vol. xxxviii., p. 30.
[14] Stevens: The Dissemination of Intra-abdominal Malignant Disease, Brit. Med. Jour., 1907, vol. i., p. 306.

COUNTY NURSING ASSOCIATIONS.—The tenth annual meeting of the subscribers of the Cornwall County Nursing Association was held at Truro on April 5th. The report stated that there were now 52 nurses working in the county in 45 districts. The expenditure during the year was £3709. The Earl of Mount Edgcumbe was re-elected president.—At the annual meeting of the Somerset County Nursing Association which was held recently it was stated that during 1906 seven new districts have been started in the county. The financial statement showed that the income amounted to £1273 and a favourable balance of £472 remained.

SUICIDE AND SANITY.[1]

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Is suicide always an insane act? Is a jury technically right in refusing in some cases to give the victim absolution by declining to give a verdict of unsoundness of mind? These are the questions I beg to submit for the consideration of this society, for the time has come when a more authoritative dictum can be given in answer than was possible when the clinical study of insanity had not reached its present development.

What is commonly called the "instinct of self-preservation" is probably a statement of fact. It postulates that when anything threatens the life of the animal it endeavours to protect itself by using either its powers of escape or its natural instruments of defence, or of both; in no case does it destroy its own life as a means of escape from present danger or trouble. There is an apparent exception to the all-pervading exercise of the means of escape and defence when terror assumes so dominant an influence as to paralyse the individual and render it incapable of flight or resistance at the very moment where it is most needed, so that it falls an easy prey to its aggressor; even then it does not kill itself. The hen which has reared a brood of ducklings sees with dismay its foster offspring enter the water and in great perturbation tries to call them back, but it does not go into the water to try to save them, the sense of self-preservation is too strong. The other day I startled some old birds lying on the ground with some young ones which could just fly; the old birds made off in one direction and the young ones in another; but the old birds, whilst making a noise to give notice probably to the young ones of their whereabouts, did not attempt to assist them; they went right off in another direction with the object of saving their own lives and left the young ones to shift for themselves. Maternal instinct prompts the animal to protect its offspring up to a certain point, but when these efforts are unavailing and the danger to its own life becomes urgent the creature will, if possible, save itself and thus prove the truth of the old saying that "self-preservation is the first law of nature." We cannot conceive that in any circumstances an animal would kill itself because of grief at the loss of its offspring, or from jealousy—it is indeed doubtful if the idea of killing itself is possible to an animal lower than man, and whether, indeed, it is capable of understanding the method by which such an end could be achieved. The lower animals will kill each other or their own offspring, but they will not kill themselves; if they do it is accidental, not instinctive nor intentional.

Man seems to share with animals the instinctive protection of his own life, but the higher platform to which his intellectual development rises, especially on the inhibitory side, modifies this instinctive force and in some degree extinguishes it. Man has not to play a simple routine in life, he has to accommodate circumstances, and conditions may arise when it is necessary, or he thinks it is, to subordinate instinctive promptings to judgment, and voluntarily to place himself in conditions where his own life is in danger and there is little or no hope of saving it. Such a situation would be where the captain of a ship sees the last boat depart, leaving himself to a fate which must surely overtake him; but this is not suicide, it is action against instinct from a high sense of discipline and duty, the possibility of escape in some form remaining and the primeval instinct perhaps asserting itself by final attempts to escape when all necessity for restraint has disappeared. All seems to depend upon the ideas of duty and the individual interpretation of them and there is no difficulty in conceiving that a person may deliberately come to the conclusion that it is better for his family and surroundings that he should die than that he should continue to live. The question in such a case is whether when he resolves that it is better to die, and when he acts upon it, his judgment is a correct or an imperfectly formed one, whether it is due to incomplete premisses or to disordered ones.

Can a suicidal act be in any circumstances the action of a sound mind? We note that persons endure the most painful, incurable, and loathsome diseases and that they cling with pertinacity to life and would resent strenuously any attempt to interfere with its course; we see persons under the greatest mental stress come out of the ordeal scatheless, while an apparently small mental worry may become insupportable to another who has borne with heroism the most painful bodily conditions. What determines the difference between these classes of persons? Take another class of what are called compulsory suicides. There are countries where, in obedience to what is understood as the moral code, or in obedience to recognised disciplinary authority, a person kills himself; there is no question of unsoundness of mind here, in fact an unsoundness might even show itself by the person's refusal to carry out the custom of the country. Such acts are not suicidal according to our notions, they are the tokens of submission to duty and, indeed, are worthy in some degree of our admiration and should go under another name. But with us it is different. No one can compel us to destroy ourselves; it is a criminal offence against the law for anyone either to take his own life or to advise another person to do so. Our duty in this country is to keep it in any circumstances. When duty comes into force and invites people to throw away their own lives to save those of others we have nothing but admiration for what we term the unselfish devotion to conceptions of duty, but even here there is nearly always present the idea that somehow or other the result may not be fatal, there is a chance of escape and the true estimation of the chance is, moreover, somewhat hindered by the heightened emotional strain which surrounds them. Still there must be many people who would in given circumstances voluntarily give up their own lives and even themselves be the agents of their own destruction when by so doing they could avert an inevitable catastrophe to others. And to act thus means the possession of a sound mind. Motive is then the test of sanity, and to avoid the responsibility so prominently thrust upon an individual would be to betray cowardice and to allow the instinct of self-preservation to prevail over duty to the State, a condition which is a reduction from the highest voluntary development and which is therefore a temporary insanity, or an action upon impulse. Suicide may then be a sign of the most perfect sanity and the refusal to allow or to commit self-destruction may connote the lower mental tone of an inferior being. It is then necessary to believe that suicide is at times the sign of a perfectly acting mind, nay, more, of a high quality of mind, involving as it must do the dispassionate unemotional balance of pros and cons and the deliberate choice between the conflict of motives.

But such a combination of intellectual processes is rare and therefore the general acceptation that people who commit suicidal acts are temporarily insane is the correct one, for when a man sets to work to discuss with himself whether it is better for him to endure the slings and arrows of outrageous fortune or to end them he is apt to neglect some of the premisses which should enter into his calculation—he either exaggerates the results of what he has done or what has happened or will happen to him, or he is unequal by inherent or acquired imperfection of the true elements of a perfect mental content to come to a correct conclusion. The very word "motive" means what moves to an act, and "emotion," a word of the same derivative, or "feeling" is the chief constituent of true voluntary action, but this emotion or feeling is just that mental coefficient which we can least understand or explain, though, contrary to general opinion, it may exist in its most intense form in the most undemonstrative people. It is not always those who show the most "feeling" who are as we say the most "emotional," who are really the chief possessors of it, for people with strong inhibitory power, strong will, are frequently the least demonstrative of this particular element (which is the main factor of the opposing ideas), except inasmuch as it shows itself in action. Explosion of feeling seems to render true voluntary action impossible, as if the elimination of this constituent of the mental content rendered the other elements abortive or inoperative. Hence it comes that facility of emotional display, such as passion, rage, exaltation, is just the condition which reduces a person towards the instinctive level, makes him careful of his own life and at the same time dangerous to others, since to save himself he will destroy what seems to oppose his own interests. Revenge is often based, not upon the desire so much to inflict injury upon others, as in imagined self-protective interest. The explosive person is the one who is most dangerous to the community because he is the most likely to act upon impulse, which is closely allied to instinct,

[1] Abstract of a paper read before the Medico-Legal Society on Feb. 12th, 1907.

and he is probably less suicidal because of his reduction towards an instinctive condition which should be a conservative one. If this line of argument is correct we seem to be in this position that the man who commits suicide may be in sound mind, and that the man who is reduced to an instinctive state should be the last to do so, even though we must own that he is not in full possession of his faculties, whilst the man who acts on impulse, also a reduced mental state, is very likely to commit a destructive act.

Impulse, according to Wundt, is simple voluntary action, as distinguished from complex or true voluntary action, and in impulsive action we have action upon a strongly emotional single idea which may be a suicidal or a homicidal or a harmless one, but which, whatever form it may take, is always a sign of unbalanced action. It is this reduction to one idea, which in proportion to its singleness becomes an imperative one, which constitutes the danger of the condition, and which is indeed the local sign of irresponsibility, for in its presence all things but the motive to act are banished—duty to oneself and to society, the lamentable list of consequences, offence against the law,—all are forgotten or have no place in the mind of the person who acts under the urgency of the dominant and compelling idea. It would indeed seem as if the development of mind beyond the instinctive stage, whilst putting into the hands of man the power of over-riding his instinctive self-conservatism, rendered him especially liable to succumb to the force of one idea when by any means the latest developed power of deliberation is impaired, but I would also contend that there are occasions when this same highly developed mind does by its very perfection of action decree that the time has arrived for self-effacement.

Here we have the same result arrived at by different processes, the one a normal, the other a diseased one. How are we to distinguish between these two? Apparently we can only do so by estimating the circumstances in which the act occurs and by bearing in mind two main things: (1) that we never really know the inner life of a man (for he alone knows what he has done and what is probably the future result of his life's acts to himself and others), and therefore we cannot enter into his motives; and (2) that whatever be the connexion between brain integrity and mental manifestations the result, or the concomitant parallel union, is a very delicate one and is easily upset, as by its late and elaborate development we should expect it to be.

Often we can only be guided by what we know of the motives as to the true nature of the act. Not long ago a man committed suicide apparently because his wife had twins. We cannot conceive this to be a sufficient motive to any person who was able to exercise true deliberate voluntary action and we must conclude that something occurred to reduce him suddenly to subordination to an imperative idea of a strong emotional tone. The sudden development of a toxin may have done this, for in these later days we recognise that toxins artificially introduced or pathologically developed are very potent causes of insanity. I have talked with many persons who had made suicidal attempts; some of these, though they remembered the act, felt nothing of pain at the time, even though they had adopted cutting methods; others remembered nothing of it in any way. The suicidal act, absolutely unintentional as regards the individual, may turn out to be positively curative, as if the unconscious mind prompted as a way of recovery what we erroneously termed an act of self-annihilation; thus the feeling of tension from rapid heart's action and emotional stress may lead a person to use a knife upon himself with the result that a free loss of blood relieves the congested nervous system and true consciousness is restored. I have known the coldness of an immersion restore the normal mental conditions to a would-be suicide who made the greatest haste to get back to land.

In these and in many other instances of suicide there is no question of intention, responsibility, or of true voluntary action; the people on recovery can tell you nothing and it would be quite correct to say that the word suicide is scarcely the right one to use, because they are really acted upon by, not themselves, for their normal self cannot be said to exist, but by a series of processes which, in constituting another self, just act in the only way possible, i.e., that the result of a certain chain of processes is the necessary result of the existence of that chain of processes; or, to put it in another way, given any mental state only one kind of action can result, and if this action is one which is destructive to the organism the act is called "suicidal," if it involves the death of someone else it is called "homicidal," though in each instance the individual may be the sport, and not the responsible agent, of the processes within him.

The problem to determine is, Can we so direct our mental processes that the correct result must be of a destructive nature, and is this outcome necessarily a sign of disease or may it be one of a normal mental state? The answer is that at times we can and at others we cannot. At times it may be right to commit a suicidal or a homicidal act, at others it is not right to do either. The deliberate will of the State (in this country) may be in the direction of a homicidal act, as when it brings about the execution of a man, but it refuses to allow a man to kill himself—reserving that privilege for itself—and no one accuses the State of madness because it does so, nor would there be any act of insanity in the State if it acknowledged the propriety or the right of an individual to do for himself in certain circumstances what it elects itself to do for him; it is simply a case of *force majeure*, the will of the people does what it likes. It says, on the one hand, "I elect to kill you for having done certain things, but if you do it yourself I declare you a law-breaker, not of necessity insane, but guilty of an offence against the law for which I shall punish you." The law is, as far as we can judge, right in determining that its own homicidal act is justified by the sanity of the individual, but in another branch of it—the verdict of the inquest jury—it is prone to declare that a self-destructive act which may be as sound a conclusion quâ mental integrity as the homicidal one, is the result of "unsoundness of mind." This is apparently illogical. If one set of processes may be the result of a mind which is sound, why not the other?

It does occasionally happen that a jury returns a verdict of *felo de se*, but as a rule, even in the absence of evidence of any antecedent mental deterioration and perhaps out of a sentiment that it is kinder and more considerate to the feelings of the friends, the verdict on a suicide is that he was of unsound mind. The law-breaker is not of necessity insane, and there is no more reason for saying that the man who after due consideration of the pros and cons of his present and prospective environment chooses to destroy himself is insane than there is for applying the same argument to the commercial thief or swindler; both are offenders against the law, that is all.

Let us consider somewhat more closely the factors and the conditions of complex voluntary action that we may make it certain that in some cases suicidal acts are not indeed justifiable, but to be accepted as the result of normal brain action. The best exponent of voluntary processes is, I think, Wilhelm Wundt, and in what follows I shall employ his argument. Motives are the causes of volition, and a motive is a particular idea with an affective tone belonging to it, and it is just the affective tone of an idea which gives it the power of acting as a motive. The general direction of the individual will is determined by the collective will of the community in which its possessor lives, and statistics show that most men act in the same way under the influence of these external causes. Every year about the same number of men hang, shoot, poison, and drown themselves. From which we conclude that the historically determined social condition of a people is a dominant influence in the voluntary action of the individual citizen. Wundt then goes into the question of statistics and he shows that they can do no more than discover the external causes of voluntary action; the internal causes, the exceptions to the rule, constitute the personal factor, which conflicts in various ways with the other factors determining volition. Thus he says the general will furnishes a reason for the determination of the individual will, but it remains for the personal factor to decide whether the result aimed at by the general will shall be the object of volition of the individual. When we have taken account of every one of the external reasons that go to determine action we still find the will undetermined, so these external causes are the motives, not the causes, of volition, the difference being that a motive may produce its effect but a cause must, and this uncertainty of the connexion between motive and volition is only due to the existence of the personal factor. He then goes on to prove that personality is the only cause of action and the only direct effect of a motive is exerted upon the personality, or otherwise upon character, which is the sole immediate cause of voluntary action. And character is partly the result of conditions of life, partly an original possession of the personality.

Assuming that Wundt's estimate of character as the sole

determinant of voluntary action is correct, we may understand that practically we have two forms of character to deal with—one, the ordinary man as we know him, the other the same individual when the subject of disease. There is no difficulty in conceiving that a person of a sound personal character may place before himself—knowing all the pros and cons of his actual position—the alternative as to whether it is better for him to die than to live, and if he chooses to kill himself he may be very possibly doing the best thing—not, of course, the right thing, because he is transgressing the law of the community, but the best thing in the circumstances in which he is placed. There is nothing insane in following out a course of action which anticipates that of the community—e.g., a man shoots another with premeditation and then shoots himself; it is a sign not necessarily of insanity but rather of correct argument that knowing what the action of society would be he prefers to avoid all the dreadful details of the trial and the torture of awaiting in prison the time of his execution.

A suicidal act is the result of a mental process which may be quite normal, but as a rule it is probably the fruit of a morbid process and we distinguish between the two only by a full analysis of the antecedent conditions. Even then we shall at times be in a difficulty because of the impossibility we may experience in arriving at all the contents of the "character" which made the suicidal act the only one possible, but whereas the lower instinct is to save one's own life at all cost to others, there does arise this question, whether with the higher development of reasoning it may not be the teaching of a higher instinct that there are occasions when suicide is the best thing.

Consider for a moment how disease kills. It is by violent mechanical means as a rule, akin to those of the suicide. In enteric fever there is a rupture of the intestine followed by collapse and death. In apoplexy there is a rupture of the coats of a vessel or vessels and death from loss of blood and pressure. In heart disease the mechanical impediments to a free circulation gradually increase until dilatation and weakening of the central organ occur and syncope results. In aneurysm there is a sudden rupture of the wall tissue, a copious hæmorrhage and death from a combination of mechanical forces. It all looks as if when a series of processes inimical to health has attained a degree of intensity and when there is no apparent chance or likelihood of improvement nature takes a short way of ending the trouble by a quick and mechanical method. In the same way when an individual has become the victim of a combination of processes, as in insanity, rendering him useless to himself and a danger to the community, it is advisable that he should cease to live, and so what we may call the instinct of disease, a suicidal act, supervenes. Such a terminal seems to be the correct issue to a series of processes (disease) unfriendly to the activity of health and is a direct opposite to the instinct of health, which is self-preservation, in the interest both of the individual and of the community.

I am not here concerned with the moral or ethical questions of the validity of the individual to destroy himself, whether it is against the tenets of religion, as we know it is in this country against the law. My argument is that an act is the outcome of a certain intensity of nerve processes and that the composition and the force of these processes may be quite normal and valid for the individual, even though opposed to the law made by the community.

In the early periods of society the importance of preserving the race would be imperative and therefore the instinct of self-preservation would be strong. With the increase of population and of the reciprocal requirements of civilisation the necessity might conceivably be less and less until with a highly elaborated mind it might disappear altogether and then might arise the contrary idea. It always puzzled me to account for the inversion of the instinct of self-preservation until I came to look upon the final act as the completion of a set of processes the end of which is destruction, whilst also insisting on the other hand that just as the State in its wisdom and sanity decrees that in certain circumstances it is best that a man should die, so may an individual in his sanity follow the example of the State and make a law for himself.

Summary of position.—I have endeavoured to show that the instinct of self-preservation is so modified by man's place in nature and by his mental development that the actual necessity or advisability of self-destruction takes the place of the primary instinct (as it is seen in children and in people of feeble nerve stability) and may become a secondary or developed instinct in itself; that therefore suicide, though not a legitimate act, may be understood to be the deliberate result of a sound mental process.

Inasmuch as character is the sole immediate cause of voluntary action and as we have no clue to this personal factor, why a man acts in a certain way must always be to some degree a matter of speculation, but if the act seems to be in accordance with what we know of his usual conduct and that conduct has always been voted sane there would be ground for concluding that the particular act in question was also done in a sane state.

Previous history showing change of usual conduct, presence of factors of insanity, existence of degenerative states showing presence of imperative ideas, loss of inhibition, upset in the equilibrium of the contents of true deliberative action, point to the person being in a morbid state, one which connotes irresponsibility, and the possible substitution of a destructive instinct for the usual conservative one. The destructive impulse is the necessary result of a certain trend of ideas of a less complex character than in full voluntary action, leading the individual by a rapid process to a result which is the completion, as it were, of the nervous state, and which is conservative or destructive according to the nature of the impulsive elements.

I am inclined to think that the true suicide is oftener than is supposed a sane man; perhaps, indeed, it would be better to reserve the term for the man who deliberately comes to the conclusion to kill himself as the best solution of an *impasse*, whilst we must regard those cases where disease leads to a fatal termination, not as suicide in the strict sense of the term, but as the violent result of a process which constitutes a veritable "*alter ego*" for the action of which the true *ego* is not responsible, and I would label such a person not as a suicide but as the victim of an attack of insanity of a destructive nature. If A. B. in his own personality destroys himself he is a genuine suicide, but if A. B. through disease has his personality altered and a self-destructive act ensues it is clearly not A. B. who does the act, rather is it the necessary termination of a series of changes with which the original A. B. has nothing to do. To risk an axiomatic conclusion it would seem as if the instinct of health is conservative but subject to the deliberate will which may extinguish or invert it, whilst the instinct of disease is destructive and the means for its final accomplishment lie in the reaction between the false individual and his surroundings.

Harley-street, W.

THE EARLY DIAGNOSIS OF CONSUMPTION.[1]

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IN this paper I deal with the question of the early diagnosis of consumption, more especially as it is met with in an out-patient department. Since the recognition of the fact that pulmonary tuberculosis is an infectious disease its diagnosis, and more especially its early diagnosis, as a factor in the maintenance of the general public health have become matters of supreme importance. Again, the accepted fact that pulmonary tuberculosis, especially in its early stages, is frequently amenable to certain recognised forms of treatment makes it most desirable that a correct diagnosis should be made at the earliest possible moment. The cases in an out-patient department naturally fall into three classes: 1. Those obviously suffering from pulmonary tuberculosis, in whom the diagnosis is easy. The cough, shortness of breath, and expectoration point to the respiratory organs as the seat of the disease; the loss of flesh and strength, to some chronic cachexia; the hectic, to some inflammatory disease; the physical signs which indicate consolidation of the lungs, with breaking down and contraction, commencing at the apex and gradually spreading downwards, render it highly probable that the disease is tuberculous in nature and the discovery of the bacillus makes it certain 2. Those whom one has no hesitation in classing as non-tuberculous. 3. A number of patients in whom the diagnosis is not straightforward and who cannot be placed offhand in either group.

[1] This paper, in a slightly altered form, was read as the inaugural address at the Burnley and District Medico-Ethical Association.

There may be suspicious constitutional symptoms without definite physical signs, or there may be physical signs admitting of various interpretations. This group of questionable cases includes patients in the very earliest stages of pulmonary tuberculosis, also those of later stages in whom the disease has been arrested and is at the time quiescent, cases of fibroid tuberculosis with emphysema or compensatory hypertrophy, and certain asthmatic patients; or, again, patients in whom the obvious and predominant symptoms are those of chronic bronchitis, anæmia, and debility, with possibly some wasting, and so forth. One could increase the list, but it is sufficiently long to serve its purpose and to suggest the class of patient to which I refer.

Pathology.—At this point a brief *résumé* of the pathological aspect of the subject will be of advantage. The tubercle bacillus has two actions—one local, the other general. The former inaugurates changes in the lung which are revealed to us through variations in the physical signs, the latter produces a condition of toxæmia by the absorption of the products of the activity of the bacillus, giving rise to constitutional disturbance. The local action of the tubercle bacillus causes certain changes in the cells in the immediate neighbourhood of the bacilli, resulting in the formation of what is called a miliary tubercle or nodule, a small mass of epithelioid cells, derived from the fixed tissue cells and surrounded by a number of lymphocytes. In the centre of this mass there may be one or more large cells, with numerous nuclei, placed peripherally. Tubercle bacilli have been demonstrated in the interior of these cells. It is interesting to note that a condition such as the one described can be produced by the injection of dead bacilli.

One of two things may happen to this small "tubercle," the result depending on the virulence of the bacillus, on the one hand, and upon the resistance and reaction of the tissues of the host on the other. Passing through a stage of coagulative necrosis it may become dense and fibroid, and thus be locked up in tough tissue, or it may proceed to the characteristic lesion of tuberculosis—namely, caseation. This condition of caseation, except in a very imperfect degree, cannot be produced by the injection of the dead organism, the toxins produced by the living bacillus being necessary for this further development of caseation. We have therefore two processes proceeding side by side: (1) fibrosis—the protective and conservative; and (2) caseation—destructive and progressive. In the portions of lung tissue actually diseased it is noteworthy that the blood-vessels disappear, no new ones being formed. However, in the adjacent areas of lung parenchyma, especially in the more acute forms of the disease, there is definite congestion both of the alveolar walls and of the bronchial tissues. The grey and yellow nodules—avascular in themselves but frequently surrounded by congested lung tissue—may increase in number and size, coalesce and form solid masses, or be scattered throughout the lung substance. They may soften and break down, producing cavities, or be enveloped in fibrous tissue. The manner in which these pathological conditions can affect the physical signs depends largely upon their site and it would be well to remember that the smallest bronchioles are most frequently involved, with the result that their lumen becomes diminished and possibly occluded; the disease may then spread to the alveoli, which become filled with epithelial cells and small-celled growth from the thickened walls. In the more chronic form of fibroid tuberculosis the disease beginning in the finer bronchi tends to extend to the peri-bronchial tissue and, associated with fibrosis, a complementary hypertrophy of the lung parenchyma takes place.

The local action of the bacillus is generally first in evidence towards the apices of the lungs. It is generally accepted that infection is more usual through the air passages and a focus once being formed the process extends by dissemination through the air tubes, by the blood stream or the lymphatics. Sometimes it is the abnormal physical signs in the lung which arrest our attention; at others, certain symptoms and the presence of constitutional disturbances lead us to suspect a lung lesion and we then examine the chest for corroborative signs. The absorption and distribution throughout the system of the toxic products of the bacillus give rise to pyrexia, wasting, anæmia, and night sweats, with languor, debility, and inability for prolonged exertion. These inform us of the activity of the process and are therefore of great value in assisting us to form an accurate prognosis. The thermometer is invaluable in the early diagnosis of phthisis. If active tuberculous changes are taking place in a lung there is almost always some pyrexia; rarely, however, the temperature is subnormal. The pyrexia is irregular, usually shows an afternoon and evening rise, and is easily increased by exercise. Phthisis rarely develops without symptoms but the symptoms are frequently neglected or considered to be due to some transient or trifling cause. The clinical picture may be a most varied one and as the symptoms frequently point to some system other than the respiratory as the seat of the disorder mistakes are very liable to occur. Pallor, lassitude, a general feeling of want of fitness, and a disinclination for work are sometimes found as the first indications of disease. Atonic dyspepsia in a young adult, accompanied by anorexia and a dislike for fats, especially if there be a steady loss of weight, should always be viewed with suspicion and a careful examination of the chest made.

Chlorosis is at times the first indication of tuberculous disease and it is said that when such is the case the blood pressure is subnormal. This fact should be utilised in the diagnosis, for in simple chlorosis the blood pressure is seldom below 130 millimetres of mercury. The chest should certainly be examined carefully where there is debility accompanied by loss of weight or by a marked tendency to flushing alternating with pallor. More usually, however, the onset is associated with symptoms definitely pointing to some trouble in the lungs or respiratory tract—as cough, hæmoptysis, pain in the chest, dyspnœa, or hoarseness.

Cough is almost invariably present as one of the first signs of early phthisis; it is probably due in some cases to the congestion of the lung, in others to an accompanying catarrh of the smaller bronchi or to pleurisy; on the other hand, early involvement of the larynx may be the exciting factor. It may be noted here that in tuberculous patients, even in the "pre-bacillary" stage, there is a marked liability to catarrh, simple in nature. Cough when present is usually short and ineffectual; it may, however, result in the expectoration of small masses of mucus. One cannot overestimate the importance of a careful inquiry into the existence and character of a cough in these cases; a negative history would undoubtedly lend weight to a diagnosis from which phthisis was excluded. I remember a medical student who remarked to me one day that if anyone had reason to fear phthisis he had, for his family history was about as bad as it could be. He looked the last man to contract tuberculosis—short, thick set, an athlete who played half-back for his team, and was an oarsman. All through the summer, though apparently in the best of health, he suffered from a short occasional dry cough, to which he gave no heed until suddenly and without warning he had several attacks of hæmoptysis. Another man, a doctor and a personal friend who formerly suffered from phthisis and is now cured, told me that for a whole year before it was recognised that he had pulmonary tuberculosis he was troubled with a short superficial ineffectual cough.

Hæmoptysis, if genuine, is of paramount importance in the history. It may occur before there are any demonstrable physical signs in the lungs, and when associated, as in the case above described, with a history of cough is almost pathognomonic. It is rarely profuse in these earlier stages, sometimes being only streaks in the expectoration, at others frothy bright red blood, in quantities, as a rule, not exceeding two ounces in the 24 hours. When the blood appears as streaks in the expectoration the hæmoptysis ceases after a few hours and leaves no trace in the sputum; as a rule, however, when there is more free hæmoptysis it lasts for a day or so and then for the next few days the sputum is stained with altered blood. Hæmorrhage from the lungs in pulmonary tuberculosis may be due to one of several pathological conditions: hyperæmia of the parenchyma or bronchial mucous membrane; softening of a small focus of disease and opening into a minute vessel; ulceration of a tuberculous patch in the bronchial mucous membrane, or a small, limited, and quiescent lesion which had formed insidiously may suddenly be the cause of the rupture of a small vessel.

It is not necessary to enumerate the many other causes of hæmoptysis, but one should always bear in mind mitral stenosis, as the lungs in these cases may give evidence of patches of consolidation with some alteration of the breath sounds; sometimes crackling râles may even be heard at an apex and cough is frequent in severe mitral lesions. Fortunately on careful examination a typical case of mitral stenosis is easily recognised, but there are patients in whom the

typical bruits are absent and the diagnosis has to be made on the quality of the heart sounds and a careful inspection of the præcordium with accurate definition of the deep cardiac dulness. The small volume and irregularity of the pulse in advanced mitral stenosis would assist in the diagnosis.

Pain and tenderness in the chest may be of no moment; but, on the other hand, sometimes indicate pleurisy, the pleurisy giving rise to the first subjective and objective signs of the disease. One should remember that the pain may not be located over the site of the lesion but found in the shoulder or arm and is dull and boring in character. Dyspnœa is rare in the earlier stages, but I have met with it in patients who worked in an atmosphere of flint dust. In these patients the respirations were between 30 and 40 per minute preceding any obvious physical signs of disease in the lungs. The dyspnœa was constant and accompanied by a most troublesome, persistent, short, and ineffectual cough. The progress of the disease was rapid, the dyspnœa persisting throughout. Tachycardia, without pyrexia, but associated with constitutional disturbance is occasionally the first symptom noticed. In these cases the toxæmia is so profound that the circulatory centre is attacked; later the respiratory centre is involved, giving rise to an accompanying tachypnœa. In my experience phthisical patients suffering from apyretic tachycardia go steadily from bad to worse. I had such a case under observation for some months in the beginning of 1904. The pulse was constantly at or above 120 per minute, but in spite of a progressive lesion at the right apex the temperature was normal throughout; when first seen the physical signs were slight and his medical attendant viewed the case favourably. The patient was dead in a few months.

Another form of onset to be remembered is the influenzal.[3] It is now well recognised. Buchanan records 12 cases in which there was a history of influenza as the first sign of illness. It is to be noted that (1) the initial symptoms of tuberculous infection may be diagnosed as an attack of influenza; (2) the patient may have suffered from an attack of true influenza, which has so debilitated him that he has become infected with tuberculosis; and (3) influenza may have lit up a quiescent lesion and left the patient with a mixed infection. Without having attempted to exhaust the modes of onset I have touched briefly on some of the more important.

Let me emphasise before discussing the physical signs that in all cases of doubtful diagnosis the family and past history of the patient is of the greatest importance. Phthisis is a house- and factory-bred disease, and we must inquire for possible sources of infection. Is there anyone suffering from chest trouble in the office, workshop, or in the house? Is the patient's bed-fellow healthy? These and similar queries often yield valuable information. The majority of town dwellers are exposed to infection even if they do not become infected, and the really important matter is one of soil—the personal factor. It is essential, therefore, to find out if the vitality of the patients has been reduced by alcoholic excess, by starvation, by mental worries, overwork, or over lactation—in fact, by any cause of debility and lowered vitality which might render him or her an easy victim to tuberculosis, for if the patient cannot digest the bacilli they will digest him. The sputum must be examined for tubercle bacilli in every patient where there is any ground for suspicion. In those cases where bacilli are not found on the first examination the following method may be of help. Put three or four drachms of sputum into a test tube, add to this a small quantity of pepsin, and fill up with a 0·2 per cent. solution of hydrochloric acid. Incubate for 24 hours, centrifuge, and examine the deposit for tubercle; the deposit consists of the nuclei of cells and any bacilli that may have been present. Frequently, and sometimes in cases where one least expects it, the examination of the sputum yields positive results. There are a certain number of patients who present themselves in the pre-bacillary stage, or there may be no expectoration, or what expectoration there is may be swallowed. In such cases the diagnosis must and ought to be made irrespective of the sputum.

I will now discuss the diagnosis of pulmonary tuberculosis, based on the physical signs found on examining the chest. Suspicions as to the nature of the case have been aroused by some of the symptoms already described and you turn to the chest for confirmation or the reverse. In the consideration of the value to be placed on physical signs in the diagnosis of phthisis, we must bear in mind: (1) that the localisation of physical signs is of much greater moment than their quality; (2) that it is a safe plan to "attach much weight to the presence of certain signs, little weight to their absence"; (3) that it is always unwise to base a diagnosis on any one physical sign; and (4) that one frequently meets with very definite variations from the normal in perfectly sound chests. The recognition and full appreciation of physical signs can only be acquired by constant examination, frequent palpation and percussion, both of the healthy and diseased chest till one has become quite familiar with the variations from the normal met with in health. It necessitates the highest training of the ears and fingers to perceive the earliest variations and a judgment trained by long experience and constant practice to discriminate in each case between the important and unimportant physical signs. It is advisable to have the patient stripped to the waist, seated or standing, in a good light, which should come preferably a little from one side. Carefully inspect the chest, noting the general shape and conformation, whether it be a long, sunken, alar chest or broad, deep, and emphysematous. The former is more likely to be the chest of a tuberculous patient, though tuberculous disease is not infrequently found associated with general emphysema. Notice any hollowing above or below the clavicles, any dropping of the outer portion of the clavicle. It is most important to observe whether expansion is good and equal. Is there lagging or delay in the movement of any part? Observe the apices carefully for this. In this connexion one must not forget that basal conditions, such as thickening of the pleuræ or the presence of fluid, may cause an over-action at the corresponding apex. This over-action being taken for normal sometimes gives rise to the inference that the normal and therefore less active apex is diseased. This false inference may find apparent support on auscultation, as the breath sounds will in all probability be weaker over the less active but normal apex. Diminution or delay in the movement of the chest can be estimated by placing the hand on the infraclavicular regions of the chest, the variations from the normal being felt as well as seen. The upper portion of the chest may be examined with advantage by looking down on the shoulders from above when the patient is seated in a chair.

Another method, and a most valuable one, is to stand behind the patient. Place the hands on the shoulders close to the neck, the fingers lying over the clavicles and touching the infraclavicular areas, the thumbs being placed comfortably on the supraspinous fossæ. Yet another method of investigation is to grasp the upper portion of the chest by placing a hand in each axilla and the thumbs on the infraclavicular area. As the chest expands the fingers and thumb of each hand are separated, the extent of the separation being felt and any difference in expansion between the two sides easily appreciated. However, the fact already noted that phthisical patients have an extraordinary tendency to axillary sweating makes this a somewhat unpleasant method of examination. In early phthisis diminution of expansion or some lagging at the diseased apex is not infrequent, the functional activity of the diseased lung being much diminished. Alteration in expansion is sometimes more marked in a quiescent lesion where compensatory hypertrophy or emphysema may mask any loss of percussion resonance and auscultation gives little or no assistance; diminution of expansion is then of considerable value in diagnosis. Hardly enough attention is paid to the total possible expansion of the chest as measured at the level of the fourth costal cartilage. After excluding cases of emphysema one is struck by the frequency with which early phthisis is associated with an extremely small range of variation between inspiration and expiration, the amount being often less than three quarters of an inch.

The next step is to test the vocal fremitus. Here the normal variation is marked, and in the large majority of cases the fremitus is greater on the right side. Squires states that 86 per cent. of men and 77·5 per cent. of women show a dextral excess. One should remember that the "excess of the right fremitus is physiologically greater from the tenth to the twenty-fifth year"—in other words, the normal variation is more marked during adolescence. In women it is frequently difficult to obtain a satisfactory fremitus; it is then advisable to ask them to sing the sound "55" in as bass a voice as possible. As a rule the vocal fremitus is everywhere greater on the right side than the left over corresponding areas; if therefore one finds the vocal fremitus equal at the two apices it suggests the possibility

[3] Liverpool Medico-Chirurgical Journal, March, 1901.

of disease, while sinistral excess is practically always pathological. The vocal fremitus, however, is not of much aid in the earlier stages but is looked upon more as a corroborating physical sign.

Percussion, on the other hand, frequently yields most valuable information. The portions of the chest to which greatest attention must be paid are the following: the supraclavicular areas covering the extreme apex of the lung, the infra-clavicular areas in their outer third, the clavicles themselves *in their outer half*, and also the supraspinous fossæ. The apex of the axilla, including as it does the first and second spaces, may repay examination. Frequently, while the apex of an upper lobe yields only indefinite signs, examination of the apex of the corresponding lower lobe may reveal some impairment of note; this combination almost invariably signifies tuberculosis. The examination of the apices of the lower lobes is most simply carried out by requesting the patient to place each hand on the opposite shoulder and then percussing down the back internal to the vertebral border of the scapulæ, comparing one side with the other. Occasionally disease at the apex shows itself on mapping out the upper limit of the lung, the level on the diseased side being at a lower level than that of the healthy. In comparing one side of the chest with the other exactly corresponding areas should be examined, all the muscles should be relaxed, and the patient breathing easily. Light percussion is the most valuable, but heavy percussion is sometimes of service in the examination of the supraspinous fossæ, more especially in muscular or stout individuals. Direct percussion, using all four fingers of one hand as a plessor, assists in the appreciation of the extra sense of resistance occasionally met with as an evidence of disease at the apex, even when the percussion resonance is only very slightly or doubtfully impaired. This direct percussion frequently gives positive results, not only by affording an increased sense of resistance but also by a definite impairment in the percussion note even in cases where no alteration in note can be elicited by the ordinary methods. As a normal variation one finds the percussion note slightly raised at the right apex in about 50 per cent. of healthy chests. This occurs more frequently in men than in women and must be borne in mind when basing conclusions on variations in percussion resonance.

Auscultation.—The most valuable of all methods of examination is, in my opinion, auscultation, and there are some authorities—such as Sir Isambard Owen—who advise a reversal of the usual method of examination and suggest that it is wiser and speedier, after a cursory inspection of the chest, to begin with auscultation; then, having obtained a lead as to the site of the disease, to proceed to careful inspection, palpation, and percussion. It is first necessary to see that the patient is able to breathe satisfactorily. Many persons when asked to take a deep breath think it necessary to open their mouth and respire in a loud noisy manner or to make spasmodic movements of their chest, while their diaphragm remains fixed. It is useless to auscultate until such individuals have learnt to breathe through their nose slowly, quietly, and, if desired, deeply. When auscultating first determine the intensity of the breath sounds, later the quality. Is less air entering the apex than is normally the case? Are the breath sounds weakened? If so, what is the pathological condition causing this diminution in the normal intensity of the breath sounds? Tubercle bacilli may have lodged in the bronchial mucous membrane and caused thickening and consequent obstruction to the entry of air, or the bronchi may be completely blocked with secretion and swollen diseased mucous membrane. Another possible cause is the congestion already referred to as occurring in the more acute cases. This congestion interferes with and diminishes the normal elasticity of the lung and the breath sounds are consequently weakened. The same phenomenon is met with in the early stages of pneumonia.

A localised condition of emphysema or thickening of the apical pleuræ may also diminish the normal intensity of the breath sounds. Weakening of the breath sounds at an apex is frequently one of the earliest physical signs of phthisis and is of more value when found at the right apex than the left on account of the greater intensity of breath sounds normally present at the right apex. On the other hand, instead of the diminution of intensity the breath sounds may be louder and harsher over the diseased area. According to J. K. Fowler this harsh breathing precedes the feeble, and one may find feeble breathing below the clavicle accompanied by post-tussive moist sounds, while in the second and third spaces the breathing is harsh and free from adventitious sounds. Lindsay disagrees with the above and holds that either harsh or feeble breathing may be the earlier sign. The feeble breathing that one hears occasionally in the more advanced cases is probably due to obstruction or blocking of the bronchial tubes or to a lesion arrested in an early stage and the formation of emphysematous bullæ and puckering of the lung. Cog-wheel breathing is sometimes an indication of early phthisis, but is more frequently caused by irregular muscular contraction due to nervous conditions. Turban relates that in a few patients in whom cog-wheel breathing was present the x rays revealed that the diaphragm moved in a correspondingly jerky manner. Normal or vesicular breathing is described by Fowler as follows: "It is a soft rustling sound, audible during inspiration. It is generally followed without any appreciable interval by a sound of lower pitch, shorter duration, and faintly blowing quality heard during expiration, but this may be absent." If the quality of the breath sounds varies much from the normal and if this variation be localised to an apex one must infer some pathological condition. Expiration may be prolonged and instead of being lower pitched may become of the same, or even higher, pitch than inspiration; a pause may appear between inspiration and expiration at the expense of inspiration. Such breathing, especially if heard at the left apex, would be strongly suggestive of commencing infiltration. I say at the left apex advisedly, because it frequently happens that one finds, especially in young women, a small area below the right clavicle where the breathing is as described above, the chest being normal. When such breathing exists in a more marked degree and the expiratory murmur is blowing in character, of increased and continued intensity, and of a pitch higher than inspiration you have typical bronchial breathing such as one hears on listening over the seventh cervical spine. The lung is then past the early stage and one is dealing with definite consolidation. Faint bronchial breathing may be heard at an apex and is generally caused by consolidation with some obstruction to the entry of air, or the consolidated tissue is some little distance from the surface of the lung. The normal variations which are sometimes marked are more frequently met with in women than in men and generally take the form of some prolongation of expiration of a blowing character heard at the right apex and most intense in the infra-clavicular area. Here, as already noted, the breathing may be bronchial in character, even over a healthy lung.

Adventitious sounds when present are of more help in the diagnosis of the early stages of phthisis than any other class of physical sign. Frequent and careful examinations may be required before they are elicited, and may I emphasise again that it is the localisation rather than the quality of the physical sign that is of value, though the quality in itself may be sometimes almost pathognomonic, as, for example, the "clicking râle." A slight pleural rub at an apex one may consider as a sign of tuberculous disease, double apical pleurisy with greater certainty, and a double diffuse dry pleurisy should always be looked upon as a most suspicious condition.

"*Crepitations*," and here I refer to the fine crackling sounds simulated by the rubbing of hair between the fingers, are occasionally heard as one of the first signs of phthisis. They are recognised towards the end of inspiration and their probable cause is a certain stickiness of the alveolar walls due to congestion or nodules of tuberculous disease surrounded by small areas of atelectatic lung. The alveoli are distended by the entering air and the sudden separation of the alveolar walls causes the fine crackling sound. The first stage of acute pleurisy and the congestive stage of pneumonia may give rise to a similar sound. If there is a catarrhal condition at an apex or a breaking down tuberculous focus, you will generally find râles and less frequently rhonchi, their quality and size depending, of course, on the condition of the lung surrounding the tissue in which they are produced, and also on the calibre of the bronchus or bronchiole. A persistent catarrh localised at any apex, even without impairment of percussion resonance, is usually tuberculous. In a few cases softening of the tuberculous focus first occurs in that portion of the upper lobe just above the intralobar fissure where the lung is covered by the axillary wall. Auscultation in this region will then reveal it. The râles associated with mitral disease have been mentioned. The swallowing of mucus or frothy saliva causes sounds simulating râles; these are

heard in the interscapular region. Crepitations may be heard along the margin of the cardiac dulness; as a rule, they are of no moment. Emphysema, with or without pleural adhesions, gives rise at times to fine or medium-sized crackling râles, chiefly inspiratory, but sometimes also expiratory; they sound close to the ear and are not affected by coughing; they are occasionally localised, more frequently scattered and diffused. During the examination of each area of a chest never forget to ask the patient to cough and also to inspire deeply. How often, when quiet breathing reveals little or nothing abnormal, a cough is followed by a shower of râles during the deep inspiration subsequent to the cough, or just that little significant click so valuable in the diagnosis of early lesions. It is wise to have some routine procedure with regard to this, such as always asking the patient to cough after testing the vocal resonance. Another and valuable method of auscultation is the direct, or listening at the patient's half-open mouth. Râles, rhonchi, and crepitations can then be heard, some of which are much less audible by stethoscopy. If this be the case, it points to a lesion situated probably in the finer bronchioles and surrounded by relatively healthy pulmonary parenchyma. Their presence in the case of a patient suspected of a bacillary infection will confirm the diagnosis of a tuberculous affection.

Vocal resonance.—The vocal resonance varies with the condition of the lung and bronchi, consolidation of the lung and patent bronchi producing bronchophony, occlusion of the bronchi or thickening of the pleura diminishing the vocal resonance. It is normally louder at the right apex, where one may find bronchophony even in healthy chests. It is of value in the diagnosis of quiescent or deep-seated lesions associated with emphysema. Here there may be no marked dulness, possibly no impairment of percussion resonance, and yet bronchophony is present accompanied by râles and altered breath sounds. This association of signs should always suggest a tuberculous lesion, possibly one of some standing.

Many men with a large practice find it impossible to devote sufficient time to enable them to examine every chest case as thoroughly as I have described. I would suggest to them a rapid and careful inspection of the bared chest, followed at once by auscultation of the areas already mentioned as important, not omitting the apices of the axillæ and never forgetting to make the patient cough. Estimate the general and local expansion during respiration by palpation, then rapidly percuss the *outer half of each clavicle*, the supra- and infra-clavicular areas, and the supraspinous fossæ. If these procedures yield negative results and the expansion is good and equal, the lung is probably healthy. If, however, as the result of your examination suspicions are roused or strengthened, it is necessary to proceed with a full and complete examination. If after a detailed and careful examination there is still reasonable doubt, I suggest that the condition of the lungs be noted on a chest chart and that the patient be instructed to keep a record of his morning and evening temperature and to note especially whether there is any undue rise after exercise. He should be weighed every week and an examination of the chest should be made by an expert radiographer. The opsonic index should be estimated on three or four consecutive days to discover if it be within the normal limits, and the sputum should be repeatedly examined for tubercle bacilli. At the end of a month the chest should be re-examined and the result compared with the findings charted on the occasion of the previous examination. With these additional data one should be in a position to give a positive opinion.

In this paper I have considered chiefly the question of the diagnosis of phthisis as it arises among patients who are up and about and able to come to the consulting room or to an out-patient department. There are many other cases where difficulties of diagnosis may and do arise in acute forms of disease or in the periods of convalescence; such I have not attempted to consider.

Liverpool.

THE LONDON SCHOOL OF TROPICAL MEDICINE.—We much regret that in the list of successful students, which appeared in our issue of April 13th, by an oversight the asterisk denoting "passed with distinction" was omitted before the name of Dr. A. W. Atkinson, who did pass with distinction.

THE IMMEDIATE AND ULTIMATE RESULTS OF THE SANATORIUM TREATMENT OF PULMONARY TUBERCULOSIS.

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THE following statistics of the results of sanatorium treatment of pulmonary tuberculosis are, I think, of sufficient interest to warrant publication.

The statistics refer to 277 patients who were under my care in the years 1899 to 1905, either at Sheffield, Banchory, or Mundesley. With the exception of 40 patients, all these 277 patients belong to the leisured classes, and with the exception of 17 working men who were treated in the Mundesley Cottage Sanatorium, they have been unselected cases. The first table shows the condition of the patients when discharged, or what I may call the immediate results of sanatorium treatment. The second table shows the permanent results—viz., the condition of these same patients at the present time or at the date of their last report. Before discussing the table of statistics I think it best to define the various terms which I have used in them.

Definition of Clinical Types.

Early cases.—Patients with early disease (infiltration), for the most part in one or two lobes only, and of some three to six months' duration, with little or no fever or other constitutional disturbance.

Fairly recent and extensive disease.—Patients with fairly recent but somewhat extensive active disease in two or more lobes, with well-marked constitutional disturbance—e.g., fever, &c.

Chronic progressive disease of considerable duration.—Cases of long-standing disease—e.g., one year or more with varying degrees of activity and arrest of the disease.

Definition of Terms used to Denote Condition on Discharge.

Complete arrest.—General health completely restored in every respect and lung disease completely arrested (apparent cure), there being no physical signs present or only such as are compatible with a completely healed lesion.

Incomplete arrest.—(*a*) General health completely restored but physical signs of lung disease, though much improved, not entirely cleared up—e.g., perhaps limited to a few moist sounds on cough. (*b*) General health only imperfectly restored and physical signs of the disease—e.g., moist sounds still well marked.

TABLE I.—*Immediate Results of the Sanatorium Treatment of 277 Unselected Cases of Pulmonary Tuberculosis.*

Clinical types.*	Number of cases.	Average duration of treatment in weeks.	Result of treatment.			
			Complete arrest.	Incomplete arrest (*a*).	Incomplete arrest (*b*).	Death or no improvement.
Acute miliary disease.	7	8	—	—	—	7
Acute caseous disease.	14	14	—	—	2	12
Fibroid disease.	2	10	1	1	—	—
Fibro-caseous disease:—						
(*a*) Early disease.	91	14	66	25	—	—
(*b*) Fairly recent and extensive disease.	97	20	10	50	34	3
(*c*) Chronic progressive disease of considerable duration.†	66	18		16	42	7
Totals	277		78 or 28%	92 or 33%	78 or 28%	29 or 10%

* Included in this 66 are 11 cases complicated by advanced laryngeal tuberculosis.

† The classification adopted in the preparation of these statistics is the one proposed by Kingston Fowler (The Disease of the Lungs, Fowler and Godlee, p. 318, &c.). I have, however, made a further classification of the type described by Fowler as Fibro-caseous or chronic pulmonary tuberculosis.—N. D. B.

The chief points to be noted in Table I. (Immediate Results) are that: 1. Of the 277 patients treated, only 29 (or 10·4 per cent.) failed to obtain any benefit at all. 2. Of the

277 unselected cases, 78 (or 28 per cent.) were discharged with their disease completely arrested—apparently cured, in short. 3. Of these 78 no less than 66 (or 84·6 per cent.) were early cases. 4. Of 91 early cases treated, 66 (or 72·5 per cent.) were discharged with the disease completely arrested, and the remaining 25 (or 27·5 per cent.) were discharged in a condition not much less satisfactory, general health being completely restored in every case, the existence of a few adventitious sounds alone excluding them from the class of completely arrested. 5. The average length of treatment of these 85 patients was 14 weeks. 6. The results of the treatment of patients with somewhat extensive disease of fairly recent origin was much less satisfactory. Only 10 out of 97 (or 10·3 per cent.) had their disease completely arrested; 50 (or 51·5 per cent.) were discharged with their disease considerably, but still imperfectly, arrested and with general health completely restored, the type of result with a very fair prognosis; and the remaining 37 (or 38·1 per cent.) were not sufficiently improved to warrant expectations of their ever completely recovering from their disease. 7. The treatment of cases of chronic progressive disease of long standing is still more unsatisfactory. Of 66 of these cases treated only 1 (or 1·5 per cent.) was discharged with completely arrested disease, and no less than 49 (or 74·2 per cent.) left with a decidedly unfavourable prognosis. The remaining 16 (or 24·2 per cent.) were discharged with a very fair prognosis, the disease being very considerably arrested and general health fully restored.

Ultimate results.—Table II., which shows the permanent value of sanatorium treatment, tells its own tale so clearly that it requires but little comment. Briefly, the record is that, of the 260 patients discharged, 97 (or 37 per cent.) are in their normal health at the present time (or at the date of last report), 50 (or 19·2 per cent.) are in either fair or poor health, 103 (or 39·6 per cent.) have died, and 10 (or 3·8 per cent.) have been lost sight of. There are a few points in connexion with these records to which reference should be made. In the first place, I must say that by "in normal health" I mean that the patient is apparently cured and able to do as much as any other normal person—e.g., if a man, he is engaged at his usual work, &c.

TABLE II.—*The Permanent Value of the Sanatorium Treatment of Pulmonary Tuberculosis.—Summary of Results of 277 cases Treated during Six Years from 1899 Onwards.*

Clinical type.	Number of cases discharged after treatment.	In normal health.	In fair or good health.	Dead.	Lost sight of.
Acute miliary disease.	3	—	—	3	—
Acute caseous disease.	12	—	—	12	—
Fibroid disease.	2	2	—	—	—
Fibro-caseous disease:—					
(*a*) Early disease.	91	63	13	7	8
(*b*) Fairly recent and extensive disease.	91	26	25	38	2
(*c*) Chronic progressive disease of considerable duration.	61	6	12	43	—
Totals	260*	97, or 37·3%	50, or 19·2%	103, or 39·6%	10, or 3·8%

* 17 of the 277 patients admitted for treatment died in the sanatorium and therefore do not appear in this table.—N. D. B.

By "in fair or poor health" I mean to convey that the patient has not shaken off his disease; he still has to make the care of his health his first consideration. Various types of cases are included in this category. There is, for example, the man engaged in business; his disease is incompletely arrested, but with shortened hours of work, an office with open windows and a comfortable home, &c., he is well holding his own, and perhaps gaining ground. On the other hand, this heading includes patients who are still continuing their treatment in sanatoriums, at health resorts, or at home. Some of this group will remain as they have been recorded for many years—viz., "in fair or poor health." Some have every chance of qualifying in time for inclusion in the first group—viz., "in normal health." Others, again, before long will have to be classified among the deaths.

I have previously noted that these statistics refer to the results obtained from the treatment of unselected cases. This is an important point to bear in mind when looking at the figures, especially the record of deaths. Again, my total of 277 patients includes the first six months' admissions to the Sheffield Infirmary (1899–1900) and to the Sanatorium at Banchory (1900–1901). Both these institutions, when first opened, suffered from the usual handicap of sanatoriums commencing work in districts hitherto unprovided with such accommodation—viz., the small proportion of favourable cases amongst those admitted. Amongst the first 30 patients admitted to the Sheffield Infirmary there were only two early cases, and fully 50 per cent. were hopeless, including several cases with miliary and acute caseous disease. My experience at Banchory Sanatorium when it was first opened was very similar. Patients in all stages of the disease were sent in, many doubtless as a forlorn hope, the limitations of the sanatorium treatment being at that time very imperfectly appreciated. I doubt very much whether admissions to any paying sanatorium will ever again include such a large proportion of advanced cases. The death-rate amongst these earlier admissions at Sheffield and Banchory has naturally been a heavy one, and this is reflected in my statistics. In estimating the value of these figures as an indication of the possibilities of the sanatorium treatment as a cure for consumption the facts which I have just mentioned must be borne in mind. I have very little doubt that comparable statistics dealing with the patients whom I have had under my care from the beginning of 1905 up to the present time will be appreciably better, owing to the higher percentage of favourable cases admitted.

Judging from my own experience, the proportion of early cases amongst patients admitted to sanatoriums for the leisured classes is nowadays much greater than it was five years ago, and the proportion of permanent recoveries is, in consequence, constantly tending to become greater. I am glad to note from the reports of several sanatoriums for the working classes that a similar improvement in the admissions to these institutions is already to be observed; there still remains very much to be desired in this respect. Another fact which in the future must also increase the proportion of permanent recoveries amongst consumptives is the more general appreciation that a few months' stay in a sanatorium in the majority of cases only results in arrest of the disease and not in its eradication, and that in consequence it is essential that patients after discharge should live under healthy conditions if their arrested lesions are eventually to become obsolete. A good deal of attention is now being paid to this very important subject—viz., the after-care of the consumptive; this is bound to have a favourable influence.

One noticeable and very encouraging fact shown in my statistics is the large measure of success gained in the case of patients with only early disease. From the table it will be seen that of the 91 patients with early disease only seven (or 7·8 per cent.) have died, and that no less than 63 (or 69 per cent.) are in normal health and at work, while 13 (or 14 per cent.) are in fair or indifferent health.

I have to thank my former colleagues, Dr. D. Lawson of Banchory Sanatorium, and Mr. J. E. Chapman of Coppin's Green Sanatorium, Clacton-on-Sea, for information which they have from time to time kindly given me with regard to the after-histories of patients included in these statistics.

Midhurst.

ON LIGATURES AND BURIED SUTURES, WITH SPECIAL REFERENCE TO CATGUT.

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THE application of the ligature was described by Celsus about B.C. 50 and by Galen in the second century, A.D. Antyllus, who probably lived about the fourth century, made use of ligatures in his operation for aneurysm and Paulus Ægineta (A.D. 600) also applied them. In the dark Middle Ages there are no records of their use, and the name of Ambroise Paré is always associated with their revival about 1570. When the use of

the ligature in amputation wounds first occurred to him he conferred with Estienne de la Rivière and other Parisian surgeons and they agreed to make a trial of it, having the cautery ready to hand in case the ligature should fail. In 1785 Hunter first performed his operation of ligature of an artery for the cure of aneurysm. The frequent occurrence of secondary hæmorrhage was shown by J. F. D Jones in 1805, by experiments on the lower animals, to be due to the ligatures not having been applied tightly enough. His experiments went to show that permanent closure of the artery depended on the circular laceration of the inner and middle coats. "He also advised the use of small round firm ligatures instead of the thick and broad threads, tapes, ribbons, reserve ligatures, cylinders of cork, wood, or linen and other clumsy contrivances, after the use of which secondary hæmorrhage was remarkably frequent." Jones at the same time unfortunately stated that if the ligature were only left on the artery a few hours the vessel became impervious. This led to the use of temporary ligatures which were removed at intervals varying from six to 32 hours. Pulsation practically always returned, and Travers, their chief advocate in this country, abandoned their use and the practice of temporary ligature was soon given up. Under the operative methods prevailing at the beginning of the nineteenth century we hardly expect to find that the experiment of cutting both ends of the ligatures short was free from complications. The practice had a short life and was only employed when it was known that the wound could not be brought together or that it must inevitably suppurate freely.

In the year 1814 Physick of Pennsylvania again introduced the animal ligature. I say again introduced, because catgut is mentioned by Galen as a substitute for silk and other ligatures which might not be obtainable, but curiously enough he recommended it as a material little liable to "decompose," so that to Physick belongs the honour of introducing absorbable ligatures as such. Animal ligatures were used very widely. Physick used ligatures made of chamois leather, Jamieson of Baltimore used strips of untanned buckskin, Hartshorn pieces of parchment, Eve strips of tendon, McSweeny of Cork silkworm gut, and in 1817 we meet with the following passage from the pen of Sir Astley Cooper: "My friend, Mr. Lawrence, has proposed that the silk usually employed for ligatures should be cut off close to the knot, so as to heal the wound over it; it has occurred to me that catgut would answer the purpose better and I shall give the result of the trial which I have made. ....." Sir Astley Cooper then reports a case of popliteal aneurysm in a man, aged 80 years, treated successfully by ligature of the femoral artery with catgut. But these ligatures only remained in use for a short period, because they occasionally softened before the artery was properly sealed. Metallic ligatures were suggested but were never widely used. Then for many years surgeons preferred to put their trust in silk or hempen ligatures, allowing one or both ends to hang out of the wound.

Such was the state of surgical opinion when this branch of surgery was revolutionised by Lister. In 1869 Lister published his well-known article on Ligature of Arteries on the Antiseptic System. Owing to the discovery of an abscess about the remains of a silk ligature he was led to make experiments with animal ligatures, and for some time carbolised catgut, prepared by a long immersion in olive oil and carbolic acid, was used with varying success. The degree of success varied according to the surgeon's interpretation of the importance of Lister's instructions for the successful carrying out of the antiseptic system. Failure in the hands of Spence and Ebenezer Watson naturally made them disinclined to a repetition of the trial. Even in 1875 we read of surgeons softening the ligature in the mouth, so that the procedure hardly had a fair trial under such conditions.

In 1876 at the International Medical Congress held at Philadelphia, Lister, in the course of an address on Antiseptic Surgery, stated that he had been making strenuous efforts to improve the catgut ligature and that he had at last made a mixture of carbolic acid, glycerine, chromic acid, spirit of wine, and water which gave the requisite degree of hardness to the gut. In 1878 Ogilvie Will, in ignorance of Lister's statement two years before, published a method of hardening catgut by immersion in carbolic acid and glycerine and later in a mixture of chromic acid, acetic acid, and water. Macewen also used chromicised catgut ligatures in 1878. In 1881 Lister, in his inaugural address as President of the Clinical Society of London, stated that the catgut ligature had in some respects exceeded his original hope. It had proved very satisfactory in ordinary surgical proceedings but not in the ligation of large arterial trunks nor in Cæsarean section, in some of which cases it had been absorbed too rapidly with fatal results. He then gave details of the method of preparation of his chromic catgut ligatures. He immersed 200 lengths of catgut on the stretch for 48 hours in a solution of chromic acid 1, distilled water 4000, and carbolic acid 200. They were then dried and placed in 1 in 5 carbolic oil. They proved resistant and retained their strength. One year later Lister announced that he found his thick chromic catgut ligatures were more prone to superficial infiltration and he advised the following method of preparation. Immerse the gut for 12 hours in a 1 per cent. solution of chromic acid in water, and later 12 hours in sulphurous acid (B.P. strength). The foundation was thus laid for the use of the resistant catgut ligature. Numerous experiments have been performed since that date and various methods have been introduced. Macewen has conducted extensive experiments on the absorption of chromic gut, but his methods of preparation are rather expensive and complicated and necessitate a dependence on chemical disinfection. Amongst many noteworthy preparations formalin catgut, suggested by Vollmer and Kossmann in 1895, and improved by Hofmeister in 1896, and iodine catgut, introduced by Claudius in 1902, demand special mention in this paper.

In spite of many experiments and much clinical experience the opinion of the profession is far from unanimous in favour of the routine use of catgut, and about two years ago I was led to make further experiments owing to the general dissatisfaction with regard to the absorption and sterilisation of the catgut then in use. It sometimes led to suppuration and not infrequently caused trouble many weeks or even months after operation. In fact, Ballance and Edmunds mention a case in which sulpho-chromic catgut came away 12 months after operation.

At the commencement of a series of inquiries it was obvious that manufacturers had adopted various formulæ and had modified them according to their individual tastes. In their desire to produce an attractive ligature they seem to have been guided almost entirely by the appearance of the finished article without any regard for the fate of the catgut in living tissues. To determine this fate I attempted a series of experiments with various samples and I decided to conduct these experiments on my own tissues. For this purpose I have introduced on various occasions specimens of catgut into the superficial and deep tissues of my thigh, examining them from day to day to discover the durability of each preparation. The openings in the skin had to be prevented from closing till the conclusion of each experiment, since the part of the suture immediately beneath the skin was more rapidly absorbed than any other. Altogether I introduced 46 experimental sutures which have led to the results which I now publish. Some, unfortunately, were rather too close to the nerve endings to permit of their being retained for long, but ultimately I was able to complete a sufficient number of experiments to satisfy myself of certain important facts. It soon became apparent that practically all the commercial preparations were over-hardened. Mr. A. W. Gerrard, of Messrs. Cuxson, Gerrard, and Company of Birmingham, with great care prepared specimens under my directions for a further series of experiments, and after many trials I found what seems to me a very simple method of preparation.

The object I had in view was to obtain such a specimen as would last between two and three weeks and would be suitable for the general routine of surgical work. The method which I find yields the best results at the least amount of expense and trouble is carried out as follows. Immerse one gross of ten feet lengths for one hour in a 1 in 1000 solution of potassium bichromate in water; remove the gut, wipe it, and stretch it on frames to dry. To obtain a more durable catgut, lasting about six weeks, the solution used should contain 1 per cent. of potassium bichromate and the length of immersion should be one hour as before. The quantity of solution is of no importance. Mr. Gerrard has estimated for me the percentage of bichromate in solution after the process and finds it unaltered. The solution must not be used a second time, however, as some change takes place in it on standing for a few hours, perhaps through the action of a small amount of organic matter dissolved from the gut. The bichromate was estimated by its oxidation power on ferrous sulphate in the presence of sulphuric acid, using ferricyanide of potassium

as indicator. The hardening process is most conveniently and economically carried out by manufacturers on a large scale.

Iodine catgut is quite satisfactory with regard to its absorbability where a period of from six to ten days only is required, but I will refer to this preparation again when dealing with the sterilisation of catgut. Formalin catgut is also a most admirable preparation and I found it satisfactory. Most commercial preparations are very resistant, lasting as a rule from about eight to 12 weeks or more, but may be used for such operations as the radical cure of hernia, &c.

A point on which there seems to be some difference of opinion is the effect of suppuration on the absorption of catgut. Ballance and Edmunds state that it accelerates the absorption, while Macewen holds that the process retards absorption. My experience, which is, fortunately for me, very limited, would strongly support the latter view.

There is no need for great elaboration of the specimens of catgut. Since the fate of any given specimen can only be approximately foretold it is sufficient for routine surgical work to have a preparation which will last between two and three weeks and one which will last about six weeks. As Macewen points out, it is impossible to hold structures in permanent contact, as after about 21 days the continued traction of the suture causes soft tissues and even bone to give way before it.

Absorbable ligatures are not as widely used at the present time as they should be. For example, it has always seemed to me a pity to see the chest wall after an amputation of the breast studded with practically non-absorbable silk ligatures when catgut would be just as efficient and much preferable. I was very much impressed during my student days by seeing the late Mr. Joseph Collier remove an irritating silk ligature from a mass of omentum many weeks after a laparotomy performed by another surgeon. At that time he told me that he had seen a hard swelling on the chest wall of a woman five years after amputation of the breast for carcinoma, the swelling proving to be due to a silk ligature which was causing irritation. Dr. Archibald Donald has also told me that he has abandoned the use of silk in repairing the pelvic floor after hysterectomy and other pelvic operations, owing to the fact that he has found silk a source of trouble, even many years after the date of operation.

Catgut is to be had all over the world in abundance and is extremely cheap; for these reasons alone it is the most suitable of the animal ligatures, provided it can be relied upon. I have not the opportunity for gaining experience of the material best suited for ligation of the large arteries in continuity, and the subject involves so many considerations besides those belonging to general surgical work, that I will venture no opinion as to the best ligature to employ. However, I strongly advise that catgut be more widely used; for ligatures and buried sutures, plain catgut, or the slightly hardened bichromate catgut, and for such purposes as the radical cure of hernia a more resistant and stronger material, such as formalin catgut or the harder bichromate gut which I have described. Thus only may the patient be safe from any further trouble from this source after leaving the surgeon's care.

There is only one condition to be attached to the routine use of catgut, and that is that the surgeon must be certain of its sterilisation. For this purpose it is at least desirable that the sterilisation be carried out by someone who can be trusted and is known to the surgeon. Another essential is that the method should be simple, inexpensive, and easily carried out and that there should be no chance of contamination of the material after it has been sterilised. To fulfil these conditions it is better that the gut should never be interfered with between the time of its sterilisation and the time that it is used in an operation. Any method of storage which involves constant withdrawals from the same stock is objectionable on this account alone. In conducting experiments on the sterilisation of animal ligatures I have always considered that those methods which aim at this end by means of chemical antiseptics are inferior to those in which heat is the agent employed. I was convinced that practically all surgeons with an aseptic technique would also prefer a method of sterilisation by heat to any chemical disinfection.

Prepared from the small intestine of sheep by twisting into cords the specially prepared submucous coat, catgut is bound to be a septic material, and it requires thorough treatment to render it aseptic. It must be admitted that many eminent surgeons use catgut which has been disinfected by prolonged immersion in carbolic acid solutions and have found it perfectly satisfactory. Iodine catgut is also very popular at present. The usual agent employed is about a 1 per cent. solution of iodine in potassium iodide and water. When kept in this solution the gut becomes brittle and it has been suggested to store it in dry sterile vessels or in alcohol after eight days' immersion in the iodine solution. To my mind it is objectionable on account of its odour and the way in which it stains the hands, linen, and tissues. It is, however, only fair to state that it has proved aseptic (in fact antiseptic) in the hands of many surgeons, and Mr. Mayo Robson informs me that he has now abandoned his xylol process and uses iodine catgut with the greatest satisfaction.

Further evidence of the sterility of iodine catgut has been advanced by Mr. J. Scott Riddell, who has used the iodine-spirit catgut described by Salkindsohn (immerse for eight days in solution containing tinct. iodine B.P., 1 part; and proof spirit or 50 per cent. alcohol, 15 parts). Mr. Riddell states that this catgut may be stored almost indefinitely in the solution and does not become brittle.

If a simple method of chemical disinfection is to be used, instead of what I would call the ideal method of applying heat, iodine undoubtedly yields excellent results. Iodine and the iodides are very efficient antiseptics which deserve wider recognition, the biniodide of mercury, for example, being a much more penetrating antiseptic than the perchloride. This is easily demonstrated by exposing cross-sections of catgut which has been immersed in solutions of these chemicals to the action of sulphuretted hydrogen. On dividing gut which has been immersed in a solution of perchloride of mercury and exposing it to sulphuretted hydrogen it is found that only the outside layer is turned black, while the gut which has been immersed in the biniodide solution is stained black throughout, showing that the mercurial solution has penetrated to the centre.

Many methods of employing heat to sterilise catgut have been devised. It has been sterilised by means of dry heat, which process is very elaborate and leads to difficulty in storing. It has been boiled in water after being over-hardened, but catgut so prepared is objectionable owing to the change in its resistance to living tissues, and the difficulty there is in determining the time it takes to be absorbed. It has been heated in olive oil. It has also been heated in various volatile substances—notably in alcohol, xylol, turpentine, cumol, &c. Alcohol was used in 1890 by Fowler, who sealed up suitable lengths in strong horseshoe-shaped glass tubes. Jellett used a metal cylinder containing alcohol in 1896, and in 1898 Mayo Robson adopted a similar cylinder, using xylol. Alcohol boils at 78° C. and xylol at 140° C.

I have used various strengths of alcohol and have found that although methylated spirit and other diluted forms have been recommended by various authors, the catgut is always profoundly changed and only the over-hardened preparations will stand such treatment. By watching the process in glass tubes it soon became evident that some of the hardening agent is always dissolved out of the gut by boiling in these weaker preparations of alcohol. Absolute alcohol must therefore be used, which is objectionable owing to the cost. Xylol is very cheap and acts equally well and a mixture of equal parts of absolute alcohol and xylol may also be used. All these methods of applying heat, when the gut is inclosed in a vessel with these volatile substances, are efficacious in rendering the catgut sterile. If the cylinder is working well (which many who have tried the method will admit is more often the exception than the rule) and the gut is used direct from the cylinder no objections can be raised, but this is hardly practicable. I therefore suggest that the only absolutely safe method is to keep the material hermetically sealed in glass tubes until required for use. For this purpose I have for about two years sealed up animal ligatures in tubes containing xylol or a mixture of xylol and absolute alcohol and then heated the tubes in water. They were first tried by Mr. William Thorburn in his private practice and were later introduced at the Manchester Royal Infirmary. I will describe the method of preparation, so that if anyone should be tempted to adopt it he may be saved the trouble of working out the details and will be enabled to attain the result at the least possible cost.

Suitable glass tubing, with an outside diameter of one centimetre, and the thickness of the glass being not more than one millimetre, should be chosen. It is sold in five feet lengths, but should be delivered in half lengths measuring two feet six inches. The tubing is washed thoroughly with water, and later washed through with

methylated spirit to hasten the drying process. It is dried before the fire, and this takes some time to be thoroughly accomplished. The clean dry lengths are then sealed in the middle in the blow-pipe or ordinary Bunsen flame, leaving lengths of one foot three inches with one end sealed up. The open ends are rounded off by heating in order to facilitate the introduction of the catgut. Then with clean and perfectly dry hands, half a hank of catgut (about 5 feet) is rolled round two slightly separated fingers and is inserted into the tube and pushed to the closed end with a piece of glass tubing of a smaller diameter. Then from a pipette, a burette, or a measure glass sufficient xylol to cover the catgut completely is let in. When a sufficient number of tubes are ready (it is an advantage to prepare a large quantity at one time) they are sealed off in the blow-pipe or Bunsen flame about one and a half inches above the level of the xylol, leaving a sealed tube containing catgut and xylol and another tube sealed at one end only with which to repeat the performance. I have described these small details to show the most economical method of dealing with the tubing. For some time I used an ordinary Bunsen flame, but there is a distinct advantage in using the blow-pipe flame owing to the neater sealing and the great saving of time.

It might be thought that the process of sealing the tubes was not free from danger and the alarming red labels on the tins of xylol from manufacturing chemists are calculated to encourage this belief. A slight explosion occurs in the tube during the sealing process on many occasions, but it is not at all alarming as there is a free outlet for the gas and there is not the least degree of danger attached to the whole performance. The process is very easy and simple; I personally sealed off tubes for hospital use for about 12 months, and now the arrangement at the Manchester Royal Infirmary is for the staff of nurses attached to the operating theatres to prepare and to fill the tubes and then the laboratory boy seals them off. In private I do the work myself, but the whole process can be carried out with ease by the sister in charge of Mr. Thorburn's private patients.

After sealing the tubes are placed in water in an upright position, which is maintained by arranging them in the pockets of a calico bag suspended in an instrument kettle. They are kept at 212° F. for from half an hour to an hour, varying with the thickness of gut, or they may be kept at 212° F. for about 20 minutes on each of two succeeding days, which is theoretically sounder, but in practice the continuous boiling has led to perfect results. The tubes have then to be filed about opposite the upper end of the folded gut and the tube is broken between pieces of sterilised lint when required at an operation. On extracting the gut with sterile forceps it is immersed in whatever lotion is being used and cut as required.

Though the process seems rather tedious and prolonged I can state that in preparing large quantities at a time it is so easily and expeditiously carried out that it is well worthy of a trial. The staff of nurses who have carried out my instructions inform me that they consider the work trifling compared with the continual preparation which was the rule before. The knowledge that there has been no interference with the gut since the process of sterilisation must also lift a great weight of responsibility from the minds of all taking part in a modern operation under aseptic principles, the success of which is as much a triumph of organisation as a personal achievement of the surgeon in charge, who of course has to bear the whole responsibility.

I have never succeeded in obtaining a culture from the specimens of catgut so prepared. I have smeared the gut with staphylococci, streptococci, and bacillus coli communis before the process was undertaken and have always found it sterile on trying to obtain a culture afterwards. The clinical results have also been satisfactory. The method is extremely cheap and the cost of the whole process is less than ½*d*. per tube, each tube with the catgut contained in it costing from 1½*d*. to 2½*d*., according to the variety of catgut used.

Mr. Thorburn has used it constantly in private and hospital practice and the results have been most gratifying. At the Manchester Royal Infirmary gut so prepared has been in constant use for over 12 months, and the huge increase in the amount of catgut used at that hospital—there has been three times as much used as before the introduction of this method of preparation—is sufficient guarantee of the satisfaction which it has given.

I am personally perfectly satisfied as to its sterilisation and it is with absolute confidence that I recommend it to the notice of the surgical world.

Bibliography.—Celsus: Book v., chapter xxvi., paragraph 21. Galen: Kuhn's edition, chapter xxiii., vol. xi., p. 313. Paget (Stephen): Life of Ambroise Paré. Hunter: Works, edited by Palmer. Paget (Stephen): John Hunter (Masters of Medicine series). Jones, J. F. D.: A Treatise on the Process Employed by Nature in Suppressing the Hæmorrhage from Divided and Punctured Arteries, and on the Use of the Ligature, 1805. Cooper: Surgical Dictionary; Articles: Aneurysm; Ligature. Cooper and Travers: Surgical Essays, vol. i., p. 135. Ballance and Edmunds: Ligation in Continuity. Lister: THE LANCET, April 3rd, 1869, p. 453; Transactions of the International Medical Congress, 1876, p. 538. THE LANCET, Dec. 22nd, 1877, p. 927. Will: THE LANCET, July 20th, 1878, p. 79. Macewen: Annals of Anatomy and Surgery, Brooklyn, N.Y., 1881. Lister: THE LANCET, Feb. 5th, 1881, p. 201; THE LANCET, March 18th, 1882, p. 440. Fowler: London Medical Record and Recorder, 1890, p. 353. Eastman: Annals of Surgery, 1894, vol. ii., p. 56. Hofmeister: Zentralblatt für Chirurgie, 1896, p. 193. Jellett: THE LANCET, August 8th, 1896, p. 379. Senn: Medical Press and Circular, 1897, p. 145. Robson: THE LANCET, Oct. 1st, 1898, p. 874. Dauber: THE LANCET, Oct. 22nd, 1898, p. 1055. Claudius (M.): Deutsche Zeitschrift für Chirurgie, 1902, vol. lxiv., p. 489; 1903, vol. lxix., p. 462. Macewen: Brit. Med. Jour., 1904 vol. ii., p. 234. Moschcowitz: New York Medical Record, 1904, p. 772; Annals of Surgery, 1905, vol. ii., p. 351. Barling: Brit. Med. Jour., 1904, vol. ii., p. 473; 1905, vol. i., p. 823. Ballance: THE LANCET, Oct. 29th, 1906, p. 1043. Claudius (M.): Undersøgelser over Jodkatgut et indlæg i Katgutsporgsmaalet, Kobenhavn, 1906, B. Borgen. Riddell: Brit. Med. Jour., April 6th, 1907.

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SOME INDICATIONS FOR THE TREATMENT OF CHOLERA.

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THE treatment of cholera, like that of most acute infections, with the notable exceptions of diphtheria and partially of plague, will have to remain mainly empirical until an anti-cholera serum prepared on the lines indicated by Macfadyen[1] is available. Considering the great virulence of the affection and its extremely rapid course, any remedial measures to be effective must be early applied, prompt in action, and easy of application. All these desiderata do not equally exist in India, where early treatment in most diseases is the exception rather than the rule. Hospital treatment is thus beset with difficulties and limitations which are practically unknown in Europe.

There exist, however, well-defined indications along which the treatment of cholera can be carried out, and the following method adopted at the Arthur-road Hospital during the three epidemics of 1900, 1904, and 1906, it is to be hoped, will be considered worthy of more extended trial. The indications may be stated as follows: (*a*) to destroy the virus and to neutralise its toxins if possible; (*b*) to supply the loss of fluid to the system depleted by the flux; (*c*) to keep up the circulation and restore and re-establish the functions of the kidneys; (*d*) to nourish the patient, or rather to withhold all irritating nourishment; (*e*) to tide the patient over the stage of reaction; and (*f*) to treat complications and sequelæ, and symptomatic treatment.

The above indications can be met by various methods, but such only are applicable in times of epidemics as could be carried out easily and without much skilled assistance.

(*a*) To destroy the virus *in situ* and to neutralise its toxins require a powerful and at the same time an innocuous germicide or a bacteriolytic serum as well as an antitoxin. The latter appears to be within probable reach. In the meanwhile various germicides have been employed with varying success, such as quinine, carbolic acid, solution of perchloride of mercury, solution of terchloride of iodine, salol, dermatol, tribromophenol bismuth (xeroform), &c. Whilst conducting some observations with the last during the epidemic of 1900, Dr. Alfons Mayr, then of the Municipal Serum Laboratory, suggested to me the use of the cyanide of mercury, as from some comparative tests of the action of various germicides on the cholera vibrio he had found it to be more active, and therefore he considered it likely to be useful in cholera. The dose, however, was a matter of some difficulty, and we ultimately decided to

[1] THE LANCET, August 25th, 1906, p. 494.

administer it in doses of one-tenth of a grain with simple syrup and water made up to one ounce every two to three hours according to the stage of the disease and frequency and character of the motions. It became soon noticeable that it exerted a marked influence in controlling the frequency and altering their character, the typical rice-water stools being replaced by bilious ones. In the algide stage, when diarrhœa has all but ceased, only a few doses were required; but in early cases, if properly exhibited, its effects were well marked. The only drawback to its use was stomatitis during convalescence. If the doses be, however, well graduated according to the gravity of the case and frequency of motions and rapidly reduced as improvement sets in, many patients escape it altogether. The cyanide of mercury was therefore adopted and has been in continuous use in conjunction with the treatment described below.

(*b*) The choice of means for restoring to the system the loss of fluid is limited to but three: (1) transfusion of saline fluids; (2) hypodermoclysis; and (3) enteroclysis. The first is not easy of application in epidemic times, requiring skilled assistance and other facilities; the second, apart from being painful, often gives rise to cellulitis in spite of all aseptic precautions, and entails prolonged convalescence and tardy recovery. Reliance had therefore to be placed on the last, and rectal injections of one pint of normal salt solution made with boiling water and cooled to about 100° F. are administered at intervals of four hours. If the hips are well elevated and the injection given very slowly by a gravitation douche raised to about four to five feet above the level of the bed, with a soft rubber tube inserted high up to from 10 to 12 inches, it is painless, without discomfort to the patient, and is almost always retained; occasionally an ounce or two may be expelled after an hour or so. It is not, however, practicable to give the injection if the frequency of stools is great, nor is it required in the early stage if the drain from the system could be checked. But in the advanced and collapse stage such injections are of great utility as the fluid is rapidly taken up by the system and by diluting the blood renders it less viscid and therefore easy of circulation. Circulation is thereby restored and urinary secretion is stimulated. Under their influence the patient loses that haggard and pinched appearance so characteristic of cholera; the flesh does not appear shrunken nor the eyes sunken and hollow—in fact, the aspect of the patient in most of the cases is placid and not at all typical of cholera. The frequency of the injections is gradually reduced as the patient improves and after the urinary secretion has become freely established they are stopped.

(*c*) The third indication to keep up the circulation and to re-establish the functions of the kidneys is met partly by the measure above detailed and partly by the use of drugs acting directly as well as indirectly upon the heart and the kidneys. With this object the following formula is employed in doses of 20 minims, in an ounce of water, administered every two, three, or four hours according to the state of the pulse:—

Caffeine sodio-salicylate	...	...	...	grs. 2½
Sparteine sulphate	...	...	...	gr. ½
Liquor atropinæ (B. P.)	...	...	...	m. 1
Spiritus vini Gallici	...	...	...	ad m. 20.

Coldness of the extremities and profuse clammy perspiration are readily controlled by the atropine; in addition, hot-water bottles, or foot and body warmers, sinapism to the calves, and friction of the limbs with dry ginger powder are often resorted to. Hot linseed poultices to the abdomen and loins are continually kept on and changed every two or three hours. In order to encourage urinary secretions, if defective in spite of the above measures, poultices of digitalis leaves are utilised and often dry cupping is supplemented with good results. The above measures are in most cases effective in keeping up the circulation and re-establishing the function of the kidneys.

(*d*) The all-important question of nourishing a cholera patient presents many difficulties. The extreme irritability of the stomach and the almost total inhibition of all digestive and absorptive powers indicate that the alimentary system, already so gravely perturbed by the cholera bacillus and its toxins, is in no mood to tolerate any further irritation. The stomach instantaneously repels all irritants—even the blandest nourishment is but an irritant at the time—and sounds a warning to hold the hand. It is well to listen to it. The alimentary tract must have time to throw off the poison and to recuperate itself until its natural functions become re-established. Absolute physiological rest is thus indicated and should not be withheld. It is best therefore to stop all food and all alcoholic preparations. The latter considerably aggravate the irritability of the stomach, are generally rejected as soon as administered, and without doing any material good to the patient exhaust him by frequent rejections. If they are administered with the object of stimulating the heart, the object is defeated, inasmuch as each act of vomiting adds to the exhaustion and restlessness of the patient. No alcohol, no milk, and no meat preparations, is a salutary doctrine under the above conditions. The only nourishment—could it be so called—allowed is hot black coffee without milk and without sugar. This is administered day and night as frequently as the patient requires a drink. It is usually retained and quenches thirst far better than cold fluids. It is curious to notice that excessive thirst and that wild craving for cold liquids so characteristic of cholera are absent among the patients treated on the above lines, the cyanide probably soothing the irritability of the stomach which is not otherwise irritated, and the rectal injections supplying the fluid to the system, and thus relieving thirst indirectly. The patients bear the deprivation of food well, and even among children the distress from its absence is not so evident as one would be led to expect. Black coffee is thus administered for from three to five days until the functions of the kidneys are restored and there is a change in the character of the stools. Thereafter thin arrowroot congee, slightly sweetened, is allowed, to which subsequently milk is gradually added. After the disappearance of all acute symptoms plain biscuits, rice and milk, plasmon, and later fresh mutton broth are allowed.

(*e*) As the stage of reaction is but a manifestation of toxæmia it requires careful watching. It is, however, not well marked nor invariably present in the cases treated by the above method. Violent fluctuations of temperature are practically unknown, the body warmth, already so well sustained, gradually returns to normal without attaining to any great height, and the danger always associated with this stage is practically non-existent. The treatment becomes thus considerably simplified, inasmuch as before this stage is reached the greater portion of the toxins have been eliminated and the risk of acute toxæmia altogether averted. High temperature reaching to 104° F. is but rarely observed and acute delirium that occasionally accompanies it is also an equally rare occurrence. An alkaline mixture containing sodium bicarbonate, citrate of potash, with tinctures of digitalis and nux vomica is all that is needed, as it acts both as a diaphoretic and diuretic. Antipyretics are not necessary. Should the delirium be acute the bromides with tincture of hyoscyamus are indicated. If very violent, hyoscine hydrobromate or even morphine may be required subcutaneously.

(*f*) Symptomatic treatment may be required for occasional persistent vomiting, for after-diarrhœa, or for prostration, and sometimes to encourage the sluggish functions of the kidneys which after partial efforts at reaction appear to lapse again. Persistent vomiting is controlled by cocaine hydrochloras in doses of one-eighth of a grain dissolved in a teaspoonful of water or mistura pepsini composita cum bismutho (sine opio) in ten-minim doses administered every quarter or half an hour until four doses have been administered. Crushed ice is sometimes also useful. The after-diarrhœa can be treated by bismuth or, better still, by dermatol. Prostration is overcome by hypodermic injections of camphor (camphor 2, ether sulphuric 3, and olive oil 7) in doses of 20 minims every two or three hours. The measures above described for encouraging urinary secretion have to be re-employed with greater vigour for restoring urinary functions. Dry-cupping is especially useful and may be freely used.

The only sequelæ requiring attention are parotitis and stomatitis from the cyanide. They are treated on general principles.

Results.—The above method of treatment has been employed in 395 cholera patients, 226 of whom were treated during the epidemic of 1906. With the exception of some 46 sporadic cases the rest were treated during epidemic periods. There were 203 deaths and 192 recoveries, equivalent to a case mortality-rate of 51·39 per cent. When compared with the average mortality-rate prevailing in the city—89 per cent. among 5600 notified cases—the above results may be considered fairly satisfactory. The difference between the above mortality-rates is still more striking if

the deaths are tabulated according to the time after admission into hospital as under:—

Hours.							Between		Days.				Six days and over.
½	1	2	3	4	5	6	7 and 12 hours.	13 and 24 hours.	2	3	4	5	
7	10	15	16	14	13	16	31	25	20	10	7	4	10

It appears from the above table that 96 deaths out of 203 (i.e., 47 per cent.) occurred within six hours of admission and 151 deaths (i.e., 75 per cent.) within 24 hours. For all practical purposes the former were moribund patients whose life could only be prolonged for a few hours and the treatment had no fair chance among them. It could not, in fact, be carried out in most of these cases; they have had, however, to be included with the rest, as their exclusion would have unduly favoured the results. The virulence of the disease and the condition of the patients treated are thus well brought out by the above figures. Considering the comparatively low mortality-rate of 51 per cent. from the treatment above described it is to be hoped that it will have a more extended trial.

Bombay.

A CASE OF PRESSURE ON THE TRACHEA.

BY F. DE HAVILLAND HALL, M.D.LOND., F.R.C.P.LOND.,
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ON Feb. 21st I was called to Croydon by Mr. A. J. Owen to see a patient in consultation with him. Mr. Owen gave the following history of the case. "On Dec. 20th, 1906, I was called to —— ——, whom I found suffering from headache, backache, nasal and bronchial catarrh (slight); he had a temperature of 102°, and vomited twice. I treated the case as one of influenza. In five days the above symptoms cleared up, leaving him very weak, and after a week he returned to work. On Feb. 19th I was sent for again and found the patient suffering from severe dyspnœa. He told me that a fortnight after returning to work his breathing had become difficult and he had been treated by a doctor for bronchitis and asthma for six weeks. As he had been getting worse all the time he sent for me. He had lost a great deal of weight since I saw him at Christmas. His condition was so serious that I came to the conclusion that his dyspnœa was not due to asthma, but probably due to a growth pressing on the bronchi."

When I saw the patient on the afternoon of Feb. 21st he was suffering from urgent dyspnœa and was propped up in bed. He was somewhat cyanosed and was sweating freely. His pulse was about 140 and very feeble. On making a laryngoscopic examination I found the vocal cords slightly congested but moving freely. There were no respiratory excursions of the larynx. The chest was resonant all over; there was hardly any sign of air entering the lungs, but a few rhonchi were audible. The heart sounds were normal.

The patient had had no sleep for the past 48 hours and was much exhausted. The physical signs on examining the chest clearly showed that there was some obstacle to the entry of air into the lungs. This, of course, might be due to obstruction at the glottis, to pressure on the trachea or main bronchi, or to spasm of the smaller bronchi as in asthma. The first of these conditions was negatived by the result of the laryngoscopic examination and by the absence of respiratory excursions of the larynx; the last condition was excluded by the almost entire absence of any kind of respiratory murmur and by the long persistence of the symptoms. In asthma there is always from time to time some amelioration of the dyspnœa and return of breath sounds over some part of the lungs. By a process of exclusion one came to the conclusion that the cause of the patient's distress was due to direct pressure on the trachea or main bronchi. As both lungs were equally affected the probability was in favour of tracheal stenosis. The problem then arose as to what had brought about this stenosis. The diagnosis rested mainly between pressure of an aneurysm or of a new growth. In the absence of any physical signs suggestive of an aneurysm, and bearing in mind that new growths are much more liable to bring about stenosis of the trachea, the diagnosis of pressure on the trachea by a new growth was arrived at. As the patient was in a state of awful distress a subcutaneous injection of a quarter of a grain of morphine with $\frac{1}{150}$th grain of atropine was at once administered with almost immediate relief to the worst symptoms, and he was ordered to take a combination of iodide of potassium and chloride of ammonium every four hours. The patient passed a fairly comfortable night and when seen on the next morning by Mr. Owen he appeared better. He died suddenly at noon.

At the necropsy made the day after death a mass of enlarged glands was found compressing the trachea just at its bifurcation. Dr. J. M. Bernstein, assistant pathologist at the Westminster Hospital, has kindly made a microscopical examination of the glands and reports that they are lympho-sarcomatous.

One very interesting feature of the case is the rapidity with which the compression of the trachea developed. In the beginning of January the patient, though weak from his recent attack of influenza, was otherwise well, and yet on Feb. 19th he was found to be suffering from severe dyspnœa.

Wimpole-street, W.

THE SUCCESSFUL TREATMENT OF TUBERCULOSIS AND LEPROSY

BY MEANS OF AN ALBUMINOID METABOLIC PRODUCT, CHEMICALLY ALTERED, OF A BACILLUS DISCOVERED AT BOSHOF (ORANGE RIVER COLONY) IN 1898.

BY S. F. WERNICH, M.D. EDIN.

(A Preliminary Note.—Concluded from p. 1010.)

CASE 2.—The patient was a European male, aged 33 years. Two years previously he had sharp shooting pains in the left arm, after which he lost sensation and power in the fourth and fifth fingers. Three years ago brown raised spots appeared on the forehead and eyebrows, the left upper eyelid, the wrists, and the front of the thighs. These gradually disappeared, but others formed again and his face commenced to swell. When first seen the whole face was enormously swollen, red, rough, dry, and thrown into thick folds. The leprotic infiltration was intense and general, giving the face a very peculiar appearance. There was just a quarter of an inch of healthy skin along the upper margin of the forehead. The nose was twice its normal size. (I knew the man before he got sick.) The ears were very large and swollen, especially the lobules. Leprotic infiltration extended down the sides of the neck. The outer half of the eyebrows had gone. Nearly all the beard was gone and what remained consisted of a few dry, pale, straight bristles. There was no sensation in the fourth and fifth fingers of the left hand. Sensation in the feet, round the ankles, and some distance up the legs was uncertain and feeble. The feet, legs, thighs, and buttocks presented a very peculiar appearance owing to diffuse nodular infiltration. I can only describe them as swollen, uneven, reddish in colour, some places being mottled with white. In some places it was distinctly nodular, very much like the face. The skin was dry and scaly. The feet and toes were enormously swollen. Very little remained of the nails of the first and second toes of both feet while the others were broken up and brittle. The hands, forearms, and upper arms, especially the outer sides, presented exactly the same appearance as the feet, legs, and buttocks (extensive nodular infiltration with streaks of healthy skin in between). The hands, like the feet, were very much swollen, the skin being smooth, dry, glazed, and blue. The trunk, especially the abdomen, was covered with innumerable spots of various sizes. There was a bluish-black discolouration of the skin of the front of the abdomen, with a number of pearly-white, raised, hard, flat spots which caused an appearance very much like a decomposing corpse. The ulnar nerves were very thick but not nodular. The liver was enormously swollen, measuring seven inches in the nipple line. The patient complained of an uncomfortable and painful sensation when the liver was percussed and palpated. There was very little muscular power anywhere, so that he was as helpless as a baby and extremely

feeble. There was a very repulsive odour about him which remained for some time in the room into which he was brought. He refused in any circumstances to be photographed, but a wonderfully near likeness, if we make the nose and face somewhat broader, of this man can be seen in Plate I. of Hansen and Looft's book on "Leprosy in its Clinical and Pathological Aspects" (J. Wright and Co., Bristol, 1895).

The first patient was seen daily and treated in the gaol hospital in Boshof, but this man was permitted by the Government to be isolated on his farm some 20 miles off and he was driven in at intervals to get a supply of medicine and to be examined. He was kept in town, however, for the first fortnight. Owing to the difficulty in getting a driver—he had not sufficient strength to drive himself—he came in very irregularly and consequently he was treated in a very perfunctory manner. As the war stopped my work I could not show an absolute cure in this case, but he improved sufficiently, and what is more, on the same lines as the first patient, so that the case is worth publishing.

Treatment was commenced on Oct. 25th, 1898. On the 30th there was a general subsidence all round—in the face, arms, hands, legs, and feet. The skin of the ears was wrinkled. The skin all over was flabby instead of being tightly blown up as before and the infiltrated patches stood out prominently, especially those on the arms and legs. The white spots on the abdomen were turning reddish, starting in the centre. All the red maculæ had turned a deep dark brown. The browner spots had a shrivelled appearance and showed slight desquamation. The patient complained that the skin was itching. The same complaint was made by the first patient and several others.

On Nov. 4th absorption continued. The liver measured five and a half inches. On the 14th the liver measured four and a half inches and could be freely percussed and palpated without pain. Serous infiltration (œdema) had gone everywhere. The infiltrated areas in the upper arms, which became more distinctly nodular as the œdema passed off, had become absorbed to such an extent that they were on a level with the surrounding skin. These infiltrated areas had become broken up in a large number of isolated dark mahogany-brown patches of various sizes. The skin between these groups of patches was soft and moist. The face had gone down to a considerable extent and was not so dry. The old maculæ (those that appeared three years ago) were completely empty and formed cup-shaped depressions of a deep brown colour. On the 21st absorption and desquamation continued.

On Dec. 5th the maculæ on the chest and abdomen were level with the surrounding skin. On the 12th the second toe of the right foot had a new nail (remains of the old nail dropped off) coming out. All the nails had grown one-eighth of an inch; the new portions were healthy, except on the first toe of the right foot, which still consisted of a raised mass of black brittle scales. On the 19th absorption continued, especially of the face. The nail of the first toe of the right foot had grown a quarter of an inch, the new portion being smooth, white, and healthy. The bluish-black discolouration on the abdomen was gone. All the white spots were now a bright pink. On the 30th very little infiltration was left in the neck. All the dead beard had dropped out and was being replaced by perfectly healthy, though somewhat fine, hairs. (I knew the man for years and when well he had a heavy and coarse beard.)

On Jan. 9th, 1899, the patient was progressing all round. The face was the worst part, having only gone down to one-half its former size. On the 18th all the white spots which in the first instance turned pink, were of a deep dark brown and somewhat shrunken. The toe-nails were growing well. The infiltrated areas in the neck were also dark brown, with very little, if any, infiltration.

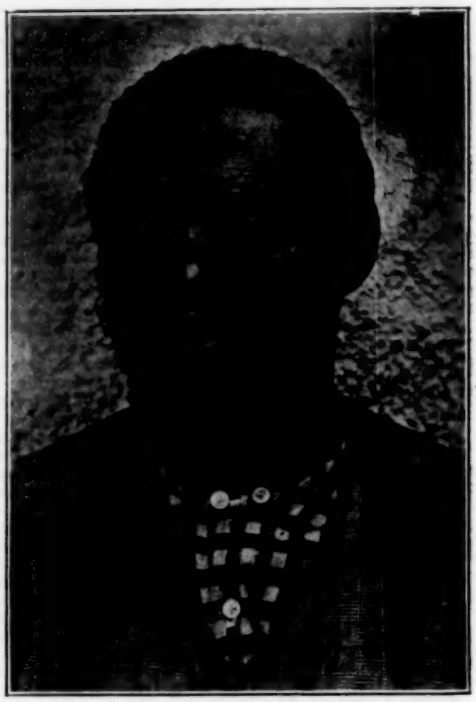
On Feb. 8th very little improvement in the face had taken place since the patient was last seen but there was a pretty thick crop of very fine hair on the outer half of the eyebrows. The feet, legs, arms, and hands were desquamating very freely. All pigmented areas were fading at the periphery.

On March 8th the face was much improved. All the infiltrated spots which had reached the brown stage were empty. The skin all over was moist and more normal in appearance. The brown areas on the neck were desquamating. Sensation in the fourth and fifth fingers of the left hand was returning and the patient had much more power in those fingers, being now able to flex and extend them to their full extent. Sensation in the legs and feet was normal; the soles were very sensitive. There was more muscular power, especially in the legs and feet, and the general health and spirits were excellent. The patient was now able to help himself. He drove in by himself and when at home he got through a fair day's work in his garden.

On April 27th, with the exception of the face, there was no trace of the disease anywhere. I should say that about two-thirds of the swelling and infiltration in the face had disappeared. The skin was very soft and relaxed. Although the somewhat swollen or rather enlarged condition of the face was mainly due to the relaxed condition of the skin, there was undoubtedly still some leprotic infiltration. (In all subsequent cases I have found the face to be the last part to yield and in the best of circumstances somewhat obstinate. It has since been found that a mask of black velvet improves matters.) At this stage the patient must have come to the conclusion that nothing further could be done for his face; in any case he did not turn up again and some months afterwards I learnt that he had placed himself at the tender mercies of a quack in the neighbourhood who was freely dosing him with arsenic. He was seen again about a month before the war broke out, when it was impossible to take him in hand. There was no relapse then but certainly no further improvement either. He was still taking arsenic at intervals. I have not seen or heard of this case again. I left the Free State a year before peace was declared.

CASE 3.—The patient was a native male, aged about 30 years. The first patches came out about ten months previously on the thighs. The face, which commenced about five months ago, was much the worst part (see illustration).

FIG. 2.



Showing the patient in Case 3.

When first seen there was a large irregular, nodular, raised patch of a brownish colour in the middle of the forehead, touching the eyebrows below and running up to the scalp. To the right of this was a patch of about the size of a shilling. On each temple and running down some distance on the cheeks was a patch like the above. There was a large patch on each cheek running up to the sides of the nose and

down to the corners of the mouth. There was patchy infiltration in the upper lip, which was very thick; also in the chin and nose. About half a dozen thick lumps, in size from that of a shilling to that of a crown, were on the neck. There was nothing on the chest and abdomen. The greater part of the small of the back and the buttocks was occupied by large irregular raised nodular patches, as were the forearms, legs, and thighs. Sensation was everywhere normal. There was no loss of muscular power.

The patient was photographed on April 6th, 1899, and treatment was commenced on the 7th. On the 11th there was a general subsidence in all the patches of infiltration which presented a somewhat shrunken appearance and the margins were less raised. Those on the nose were turning black. On the 14th the patches on the neck were so shrunken that they looked almost like huge warts. The patch on the left cheek had turned black. All the other patches were distinctly darker. On the back there were a few large spots which were not much raised at the commencement—that is to say, there was not much infiltration—and they were apparently of recent formation. Here to-day what infiltration there had been was gone and the epidermis was shrivelled and thrown into folds very much like a punctured blister. The infiltration here seemed to be largely a serous instead of a cellular one. The spots that were raised now had a peculiar nodular appearance and were cut up into smaller islands. The whole face was much smaller. On the 17th both legs up to the knees were peeling freely, as were also the patches on the nose. On the 26th the infiltration was rapidly going.

On May 4th the patches on the nose were again turned jet black. The whole face had gone down much and individual patches were shrivelled up. On the 11th the arms and legs were desquamating again. On the 14th all the spots on the back and extremities had become a deep dark brown and all those on the face a jet black. On the 17th all infiltrated patches were desquamating.

On June 24th there was very little of the disease left. There was still a little infiltration in the face but the patches in all other parts were empty. The smaller maculæ had disappeared but the position of the larger ones could still be made out, some being pigmented and others not. Treatment was stopped and the patient was put on a placebo to see the effect. The idea was to find out whether he was now immunised against the disease and whether nature would complete the cure.

On July 26th there was a relapse all round. All the spots in which a little infiltration was left had become somewhat raised again. In the large maculæ which were taken to be empty small nodules had formed in the centre. No fresh tubercles or maculæ had formed, the relapse being only seen in the old affected areas. Treatment was resumed.

On August 20th all the effects produced by the relapse were removed, the same changes (desquamation and pigmentation) following. The general condition of the patient was the same as on June 24th. Treatment per os was stopped and unsuccessful attempts were made, which need not be detailed here, to use the material hypodermically. Want of success was due partly to faulty apparatus and partly to ignorance as to the true nature of the material I was dealing with. (The blunders committed then are readily understood now.)

On Sept. 27th the patient received the last hypodermic injection when the war stopped all work. Some effect must have been produced by the materials injected from time to time (about once a week) as there was no relapse; on the contrary, there was an improvement in the condition noted on June 24th. (I succeeded in getting a hypodermic solution which produced specific effect, but it was absorbed very slowly and produced much pain.) With the exception of a little infiltration in the patches on the face, there was nothing left.

Cases 4 and 5 can be dismissed in a few words as they are very uninteresting, being both cases of lepra mutilans with very few lesions that could show any specific effect of the treatment. They were treated by the hypodermic method only in August, 1899, at the time when Case 3 received his injections. The notes of the cases are as follows:—

CASE 4.—The patient was a native male, aged 25 years. The big toe of the right foot had gone. A couple of fingers and portions of others were gone. Both hands and the stumps were swollen and several of the latter were ulcerating at the tips. Sensation in the forearms and hands was much impaired. There were a few empty maculæ. After about half a dozen injections all swelling was gone, the ulcers were healed, and there was improvement in sensation in the forearms.

CASE 5.—The patient was a native male, aged about 45 years. All the fingers were lost, leaving stumps of about one inch in length, several of which were swollen and ulcerating. Very large empty maculæ were present on the body and the arms. These empty maculæ presented the same appearance as those in Cases 1 and 2 at the stage when all infiltration had been removed—that is, patches of wrinkled atrophied pigmentless skin. The right big toe was gone. The foot was blown up and discharging freely from an ulcer in the sole and one in the position of the big toe. The result after six injections was as follows. In the hands the swelling had disappeared and the ulcers at the tips of the stumps had healed. In the foot the discharge had stopped. A couple of dead bones had come away. The swelling had subsided and the foot had healed up soundly.

Other cases have been treated since leaving the Free State and an account of these will be published later.

TUBERCULOSIS OF THE SKIN (LUPUS).

For the purpose of this paper I divide lupus into two classes: (1) pure tuberculosis of the skin; and (2) cases of mixed or secondary infection. In the first category I place lupus erythematosus (some cases at least), "tubercular" lupus, non-ulcerating lupus vulgaris, and other tuberculous lesions in which there is no ulceration (lupus non-exedens). I look upon ulcerating lupus (lupus exedens or lupus vulgaris) as cases of mixed infection, the bacillus tuberculosis by itself being unable to produce ulceration. We find a parallel condition in the lung—namely, a pure and a mixed infection. Mixed or secondary infections are also found in other diseases—e.g., syphilis (tertiary), diphtheria, &c. I believe that in cancer the same process is at work, the micrococcus neoformans of Doyen being most likely the cause of one form of secondary infection and not the primary cause itself. The cases of lupus that I have treated, so far, would fall under the clinical headings of lupus erythematosus and tubercular lupus—that is to say, pure cases only. All the cases of lupus that I have treated so far fall under the first group—that is to say, pure cases only. I am sorry that I have not been able to lay my hands on a case of ulcerating lupus yet but have not the slightest doubt that, probably with the addition of antiseptics locally, these cases could be cured readily enough. There is not the same difficulty here that we have in cases of mixed infection in the lungs. In the lung we have to deal with a cavity, closed in practically all round, which cannot be got at readily, and with retention of a considerable portion of the destroyed tissues, along with a host of micro-organisms. In ulcerating lupus, on the other hand, the cavity formed is open, is readily reached, and there is no retention of tissue débris.

To describe the changes which take place under treatment in a patch of simple lupus would be to describe those we find under similar conditions in a patch of leprous infiltration of the skin. The two behave in exactly the same way, the only difference being that as lupus is generally more chronic, there is less serous infiltration, and hence the sudden disappearance of œdematous swelling is not so marked. Desquamation takes place every fourth to fifth day and absorption goes on until nothing but a scar is left. When the true skin has not been damaged too much no mark of any sort is left. This, of course, only applies to portions of the lupus patch. Sometimes the scar has a peculiar pitted or reticulated appearance. Where scabs and crusts are present these drop off within the first 24 to 48 hours after treatment is commenced, and sometimes expose small shallow ulcers, which, however, readily dry up and heal.

TUBERCULOSIS OF THE LUNGS.

This, I feel, is a somewhat large and ill-defined subject and one liable to raise all sorts of arguments. We cannot see and handle the lung. We are dependent for a diagnosis on the history of the case, certain symptoms, and a group of physical signs to which we do not all attach the same amount of importance, and which, alas, different members of the profession interpret differently, so that one finds dulness where another is positive that there is a cavity. The personal equation enters largely here into the matter of diagnosis. If there is one subject on which "doctors differ" with a vengeance it is the physical

examination of the chest. Again, one good man will say, "Did you find tubercle bacilli? If you did not, how dare you tell us that you have been treating a case of tuberculosis of the lungs?" Another man, equally good, will tell you that he never looks for tubercle bacilli, for at the commencement of the disease, when most can be done for the patient and when most help is needed to aid diagnosis, they are not to be found except in the lung itself and we cannot snip off a piece of lung for examination as we would snip off a tubercle in lupus or leprosy, while by the time they can be found in the sputum the patient himself or any old woman in the house can make a correct diagnosis. How many men will agree as to the existence or non-existence of a cavity in the apex in any particular case?

Considering the nature of the subject and the fact that I have to report here failure as well as success, I think it best to treat it from a clinical point of view and to give an account of all the work done. For this purpose I shall divide the cases treated so far into certain groups. At the very outset a sharp line must be drawn between Europeans (pure) on the one hand and natives, including the coloured races (mixed European and native), on the other. Black blood is a fatal complication in tuberculosis of the lungs. We see this in the first place in the readiness with which black and coloured races *take* the disease when exposed to infection. I once treated a coloured boy who lost three brothers and three sisters from phthisis; his only remaining brother has spinal disease and phthisis; his father was a consumptive and his mother died from consumption. To such an extent is this true that I am convinced that tuberculosis will settle the native question for the white man in South Africa unless something is done to stop its spread. When once infected the disease does not remain pure for any considerable time. The lung breaks down very often from the very commencement of the disease and cases of chronic phthisis as met with in the white man are few and far between. It is hardly necessary, therefore, to say that the treatment of tuberculosis of the lungs by my method in the coloured and black is not such a satisfactory matter as it is in the white, it being distinctly understood, however, that in not one single instance, with the exception of some of the last 20 to 25 patients who were all whites, whatever the nature of the case may have been or whatever the complications present, was the treatment supplemented by any extra means, dietetic or medicinal.

The first group, of which I have treated about 60 cases up to date, are what I would call acute, or rather subacute, and chronic cases of pure tuberculosis. I use the word pure with a certain amount of hesitation, for I know that the lung is a very vascular organ and day and night pumps germ-laden air. Any accumulation of inflammatory matter or weakened tissue would therefore readily fall a prey to the numerous germs inhaled and would complicate the disease. The fact is that there is no drug in or outside the Pharmacopœia that has so rapid and sure an effect on any organic lesion as the material I am using. It is therefore from the nature of the effect produced more than anything else that I have come to the conclusion that we have to deal here with a simple infection and if there was any secondary infection in any case it must have been slight and the system was apparently able to deal with it effectually after the tuberculous element had been removed. All these cases have been whites. There is not a single failure to report. Most of the cases have been under observation for from one to five years and in not a single instance has there been a relapse.

I have not included in the above any cases diagnosed as early "catarrhal phthisis," as I admit that my diagnosis may be disputed here. The group includes all cases of marked consolidation of one or more lobes or, at all events, an area sufficiently cut off so as to be localised readily. In some there has been a certain amount of dissemination and there may have been one or more relapses but in no case was a cavity present. The duration of the disease has varied up to 18 months. This group can be further subdivided into the following two:—

1. *Quiescent cases.*—The history is usually as follows. The patient enjoyed excellent health up to about six months ago, when he had what he (and sometimes his medical attendant) called an attack of "influenza." (I do not want to cast stones at others as I have done this sort of thing myself.) He never got over this "influenza." He has a hacking, dry cough, with occasional pain in the chest; is feeble and unable to do his ordinary work; perspires on the least exertion; and suffers from shortness of breath. His appetite is gone and he is very anæmic. He has lost (and this the patient never forgets to mention) from 10 to 20 pounds in weight. There is no evening temperature. Tubercle bacilli are found in a few cases and with difficulty. On examining the chest one or other side is found to be flattened (usually apex) and in this position we find very marked dulness on percussion and all the other physical signs of consolidation. The rest of the chest is generally healthy. Two or more lobes may be affected. The family history is usually good or there may have been an occasional case of phthisis in a somewhat distant relative.

2. *Active cases.*—In these cases we generally have much the same state of affairs as the above, but the disease has been of longer duration. The patient's complaint has been correctly diagnosed, and he has been duly fed on cod-liver oil and advised to go to a dry climate. There is a history of one or more relapses; in fact, it is generally a relapse that brings the patient to me. There are evening temperature and a considerable amount of expectoration in which tubercle bacilli can easily be demonstrated. In addition to one or more consolidated areas there may be moist sounds all over and sometimes patches of pleurisy. In some cases the condition is somewhat of a broncho-pneumonic nature, with patchy dulness or a general impairment of the percussion note all over the lung. There is here generally a more distinct family history of phthisis. Emaciation and feebleness are more pronounced.

In some of these cases we have to deal with what I consider the first attack and I have been fortunate enough to get hold of the case early. This is the ideal case to treat. This is the patient who in nine out of ten instances is supposed to have an attack of "influenza" and is very often sent to the seaside to have a course of sea baths. The following case will serve as an illustration.

CASE 6.—The patient, a female, aged 19 years, was in perfect health up to about six months previously to coming under treatment, when she developed what was considered to be a bad cold. She remained under the treatment of the family medical attendant off and on for some time without any permanent improvement. She had been coughing more or less ever since, had lost her appetite, had decreased in weight, and had become very anæmic and feeble. She was advised to see another medical man who diagnosed phthisis and ordered the patient up country at once. When the patient was seen by me there were consolidation of the right upper lobe, numerous fine crepitations, and loud pleuritic friction, especially one inch below the centre of the clavicle. There was a troublesome cough with a fair amount of expectoration, which was all swallowed. The patient was feeble and anæmic and there was difficult breathing with pain in the position of the pleuritic patch. The evening temperature was 101° F. Tubercle bacilli were present in the sputum. On the second day of treatment the evening temperature was 99°. On the third day the chest felt more comfortable and the patient could draw breath without causing cough or pain; the evening temperature was 99·5°. On the fourth day the evening temperature was again 99·5°. On the fifth day the temperature was normal. The patient felt much better and there was very little cough. The appetite was very good; there was no pain and the patient slept well. On the eighth and ninth days she did not cough. On the eleventh day the chest was examined and nothing was found. The lungs were perfectly resonant and there were no moist sounds, and no pleuritic friction. There was neither cough nor expectoration. On the seventeenth day the patient had gained two pounds in weight and on the twenty-eighth day she was discharged without sign or symptom. The patient has been examined off and on during the last eight months and she remains in absolutely perfect health.

Under treatment we find a distinct change in the physical signs of the chest after 48 hours. In the first subdivision after about ten days it is hard to find out which side of the chest was affected, and this can often only be done by referring to the note-book. The same change is brought about in the second subdivision after from 14 to 21 days. In nearly all cases treatment was kept up for a somewhat longer period. The subjective symptoms disappear rapidly, appetite returns, weight is quickly put on, cough, expectoration, and temperature where present progressively improve until nothing is left and the patient is soon restored to his usual health.

In Group 2 I would place the same class of cases as the

first but they were all in coloured and blacks. Among those who would fall under the first subdivision a certain number got rid of their disease in the usual time, and remained well, but in quite a large percentage the benefit derived was only temporary. Among the class forming the second subdivision the majority derived only temporary benefit and only a small number remained well. It should be added, however, to be perfectly fair, that the vast majority of coloured cases were treated with very inferior products. The best given to a few was C.

In Group 3 I would place all cavity cases and here, as far as the results are concerned, a dry climate is as potent a factor as the colour of the patient. Much more satisfactory results were got where treatment was carried out in a dry climate. The wet and prolonged winter of the western province is a somewhat serious drawback. In this group the coloured or black has after some temporary improvement invariably gone to the wall without exception whatever the climatic conditions of the place. One coloured cavity case picked up 26½ pounds in weight in Boshof in about two months but I was informed that he died about two years afterwards with all the symptoms of phthisis. No white cavity case has been kept under observation for a sufficiently long time to see whether a perfect cure is possible. The trouble with these cases is the mixed infection which the tannate leaves absolutely untouched. I have no doubt, however, that a prolonged stay after a month or six weeks of treatment in a dry climate like that of the Karoo will cure a good number. The effect of a dry climate on pure tuberculosis is *nil*. It only serves to keep the case pure and so enable the patient to fight the disease more easily. In mixed cases it will keep the secondary infection down and so prolong life, but a climatic cure is rare. We see, therefore, that in the tannate we do not possess a remedy for "consumption" which is a totally different thing from tuberculosis. For the former no "cure" in the proper sense of the word will ever be found. I have the feeling that we are similarly situated with regard to cases of advanced cancer.

Group 4 consists of mixed cases in which secondary infections (streptococcic, pneumococcic, &c.) are well established but without cavity—at all events no cavity was found. In this group several white cases have been treated for short periods and sent up country for a few months. These patients improved all round under treatment but left with a considerable amount of cough and expectoration and slight evening temperature. With the help of a dry climate they have, however, succeeded in throwing these off and have returned home in perfect health. Two such cases have been kept under observation now for five years and have kept free from every sign of the disease.

PS.—*Diarrhœa of phthisis.*—I omitted to mention this complication which very readily yields to treatment by the tannate. A large number of the cases treated had this form of diarrhœa. In mild cases there were from two to four loose motions daily without any or much abdominal discomfort. In several cases, however, there has been undoubted ulceration of the bowels, as shown by abdominal tenderness, colicky pains after a meal or hot drink with desire to go to stool, and the admixture of mucus and blood with the motions. In mild cases the diarrhœa disappears very quickly, but in the severer forms abdominal tenderness may persist for some time after the motions have become quite natural and formed. No case presented any difficulty. It is proposed to treat of this and other complications of tuberculosis of the lungs when individual cases are published.

Somerset Strand, Cape Colony.

LITERARY INTELLIGENCE.—The following books are in active preparation and will be issued shortly by Messrs. Baillière, Tindall, and Cox: a sixth edition of "Synopsis of the British Pharmacopœia," comprising Concise Notes on the Changes, Particulars of New Preparations, Tables of Doses, Strengths, &c., with Analytical Notes and Suggested Standards, by H. Wippell Gadd, F.C.S., lecturer on pharmacy and materia medica to the Royal Albert Memorial College, Exeter, Member of the Pharmaceutical Society; "A Dictionary of Medical Diagnosis, being a Treatise on the Signs and Symptoms observed in Diseased Conditions for the Use of Medical Practitioners and Students," by Henry Lawrence McKisack, M.D. R.U.I., M.R.C.P. Lond., physician to the Royal Victoria Hospital, Belfast; and the "Rational and Effective Treatment of Hip Disease," by Alexander B. Bennie, M.D. Melb., of Melbourne Children's Hospital.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON TWO CASES OF FRACTURE OF THE BASE OF THE FIFTH METATARSAL BONE.

BY HAROLD BURROWS, M.B. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE SEAMEN'S HOSPITAL, GREENWICH, AND TO THE BOLINGBROKE HOSPITAL, WANDSWORTH COMMON.

THESE two cases are examples of a fracture which is apt to be overlooked unless particular circumspection be used.

CASE 1.—A healthy girl, aged 12 years, went to the out-patient department at the Seamen's Hospital complaining of pain and tenderness in the right foot dating from a recent injury. Three or four days previously she was walking along the edge of a pavement when her right foot slipped off the curbstone; and in this way she thought she sprained her foot. She had been able to hobble about since the accident and walked to the hospital; but she progressed with a considerable limp and was careful to transmit her weight through the inner side of the injured foot. On examination there was found to be some swelling around the base of the fifth metatarsal bone of the right foot, with pitting on pressure in this region and considerable tenderness. No crepitus or other distinct sign of fracture could be detected. A radiogram showed that the base of the fifth metatarsal bone was broken in a manner identical with that in Case 2. The foot was retained in a plaster-of-Paris splint for three weeks and then daily massage was employed. Some tenderness was still present when the patient was last seen, two months after the injury.

CASE 2.—A seaman, aged 43 years, had been attending the out-patient department at the Seamen's Hospital for some time to be treated for gonorrhœa. One day I noticed that he was wearing a carpet slipper instead of a boot on his left foot and that he walked with a limp. So I asked him what was the matter with his foot. He replied that he had sprained it a few days previously, but believing the injury to be a trivial one he had not sought any treatment for it. The trauma was received in this way: the patient was standing on his right leg with the left foot resting upon some object about 18 inches high. Suddenly he missed his footing and the outer side of his left foot came down heavily on to the deck of the ship. The signs were like those noted in Case 1—namely, swelling, pitting on pressure, and tenderness round the base of the fifth metatarsal bone, without marked deformity, and crepitus was not elicited. The patient ceased his attendance—I believe in order to go to sea—a fortnight after the fracture was discovered, so that the outcome of the case cannot be stated.

It will be observed that the two cases are similar. Indeed, the common resemblance among these and other recorded examples would entitle the fracture to a special name if such a distinctive nomenclature of broken bones were desirable or expedient. I believe the injury was described first by Robert Jones[1] of Liverpool, whose description included a personal experience of the fracture, sustained, if I remember, by tripping over a tent-peg and alighting on the outer side of the foot, the heel being off the ground. He was able to walk home after the accident and it was only a radiogram taken next day which proved the presence of a fracture through the base of the fifth metatarsal bone. His attention having been directed in this manner to the possibility of such an injury, he shortly afterwards became acquainted with six similar cases. Whether the fracture is common or rare I do not know, but this is certain, that it is very apt to be overlooked. In the first place, the trauma may be slight. A case was reported quite recently by Dr. Graham[2] in which the patient could give no history at all of an injury; he merely felt a sudden pain in his foot while walking; and yet a radiogram showed a fracture of the base of the fifth metatarsal bone. Secondly, crepitus, deformity, and other obvious signs of fracture are absent, and even the fluorescent screen may fail to reveal the fissure in the bone unless the examination be made with a

[1] Liverpool Medico-Chirurgical Journal, 1902, p. 103.
[2] Brit. Med. Jour., Jan. 5th, 1907.

knowledge of what is likely to be amiss. Thirdly, the patient himself may regard the injury as trivial and so mislead the surgeon. In Case 2, although the patient was actually attending at hospital for another complaint he did not even then think it worth while to mention that his foot was hurt. In conclusion, I should say that if a patient has swelling and tenderness over the base of his fifth metatarsal bone following such a mishap as slipping off the curbstone or making a false footing in some other way, it is well to remember that he may have broken the bone. Although for purposes of treatment a correct diagnosis may be of small consequence, yet for the safety of the surgeon's reputation it is a matter of some moment.

Wimpole-street, W.

A CASE OF SCOPOLAMINE POISONING.

BY A. W. MOORE, M.B., B.C. CANTAB.,
HOUSE PHYSICIAN TO ST. GEORGE'S HOSPITAL.

A GIRL, aged four and a half years, attended the out-patient department of St. George's Hospital for a squint. As she came from a distance it was advisable to complete the refraction on the same day; accordingly a drop of a 1 per cent. solution of scopolamine was instilled into both eyes. The child soon became restless and an hour later was definitely delirious. The drug was instilled at 3 P.M. and at 4 P.M. she was alternately talking and crying almost incessantly. The colour was good, the lips being of an unduly pink hue. The pulse-rate was 80 and the temperature was normal. Later in the evening the delirium was more marked and she sat up in bed chattering away quite happily. No two sentences fitted on to one another; in fact, the delirium closely resembled alcoholic delirium except that it was of a very joyous kind. Frequent licking of the lips and smacking of the mouth were very noticeable and lasted some hours. The tongue was not particularly dry; the child would protrude the tongue on demand but was by no means obedient. She frequently tried to get out of bed. Other features of the delirium were that the child observed cats crawling about on other patients' beds; she also picked up imaginary hairs from the bed-cover and ate them. The child would warm her hands before an imaginary fire, putting them up to her face to feel the warmth; the fire would first be on one side of the bed and then on the other. She would not eat bread-and-butter, but would drink a little milk. This delirium lasted about eight hours; it gradually ceased during the night, the child occasionally crying and sitting up in bed. The nurse had to sit by the cot all night to prevent the patient getting out of bed. There was no sleep. The next morning the child seemed more rational, quite quiet, and obedient. The pupils were less dilated. About 24 hours after the instillation of the drug drowsiness came on. If the child was awakened she would immediately turn over and drop into a deep sleep. This condition lasted about 12 hours, there never being any real coma. She then woke up apparently completely recovered. The only treatment employed was to give an injection of strychnine—a small dose—when the child became drowsy. The respirations and pulse were normal throughout and there were no obvious after-effects. The child was kept under observation in hospital for two days, after which time she was her normal self again. I am indebted to Dr. W. Ewart for permission to publish this case.

NURSING DIPLOMAS.—A scheme for the granting of diplomas in nursing was adopted at a special general meeting of the Royal British Nurses' Association held in the rooms of the Medical Society of London on April 12th. This scheme, prepared by the executive committee of the association, was described by Sir J. Crichton-Browne, who presided, as a means of guaranteeing the fitness of nurses for their duties. The association has power to promote such a scheme under the provisions of its charter and diplomas in nursing will now be granted after examinations to be held in local centres where there is a university, medical school, or nurse-training institution. The subjects in which candidates will be examined are elementary anatomy, physiology, and hygiene, medical, surgical, and gynæcological nursing, and practical ward work and invalid cookery. The executive committee is also empowered to confer honorary diplomas on distinguished persons.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

A Method of applying Silver Wire Filigrees for the Cure of Inguinal Hernia.—Acute Solitary Suppuration in the Psoas and Iliacus Muscles.—The Value of Anti-Colon-Bacillus Serum.

A MEETING of this society was held on April 12th, Mr CHARTERS J. SYMONDS, a Vice-President, being in the chair.

Mr. LAWRIE H. MCGAVIN read a paper on a Modification of the method of applying Prepared Filigrees of Silver Wire to the cure of Large Inguinal Herniæ in Males. He referred to the difficulty of effecting a cure in cases of very large or recurrent inguinal hernia and pointed out that up to the present time no satisfactory means had been found of dealing with such cases. The frequency of recurrence of hernia, even after operations in skilled hands, and the success met with in dealing with very large abdominal herniæ by Bartlett's method, had led him to modify that method of filigree implantation to meet the requirements of herniæ in the inguinal region, the object in view being the establishment of an operation which should justify the term "radical cure" and do away with the use of any form of truss. The method which he had adopted was that of utilising two separate filigrees, an iliac and a pubic section, of special pattern for the purpose of defending the whole inguinal region without the sacrifice of the testis and cord. The pubic section was placed upon the peritoneum between the internal abdominal ring and the pubes, the posterior wall of the inguinal canal being re-made over this by Bassini's method and the conjoined tendon being sutured to Poupart's ligament. The cord was then laid in position. A bed was thus provided for the iliac section which was placed on the peritoneum in such a manner that its inner third lay upon the cord at its exit from the internal abdominal ring. The divided muscles were then united over this iliac section, and the aponeurosis of the external oblique muscle was closed over the whole area as far as the external abdominal ring. The results in all the cases done had been entirely satisfactory. All six cases operated upon had been quite beyond the scope of the ordinary operation. No truss or support of any kind had been necessary since the time of operation. In no case had any complication referable to the presence of the filigree arisen, nor had any of the filigrees to be removed. Pain and discomfort were entirely absent.—Mr. W. G. SPENCER referred to a case of umbilical hernia which had left a large gap in the abdominal wall, in which he had used a filigree suture, and though not quite successful it was attended by considerable success. Mr. McGavin's was a most admirable adaptation.—Mr. DOUGLAS DREW recalled a case of inguinal hernia in which he had attempted the same procedure. He had also employed it in cases of ventral hernia.—Mr. A. E. BARKER had had considerable experience in the "darning" method and believed the new method, although not free from difficulty, would be very useful.

Mr. SPENCER described a case of Acute Solitary Suppuration in the Psoas and Iliacus Muscles which occurred in a healthy boy, aged 13 years. The boy died four days after the onset without being relieved by the incision made the day before. There had been no history of strain; the pus yielded a pure cultivation of staphylococcus pyogenes aureus. The only lesion found post mortem was acute suppuration in the right psoas and iliacus muscles; there was no distant septic focus. Apart from the cases arising by extension from the uterus, appendix, spine, &c., there were a number of cases on record in which a slight strain along with some distant septic focus, such as chronic otorrhœa, had occasioned acute and fatal suppuration. In other cases the distant septic focus had been apparently the cause without any strain, and, again, in others a strain had proved sufficient without any distant septic focus. Both of these causal conditions were absent in Mr. Spencer's case. At present there appeared to be no sufficient explanation of cases which, to judge by the number on record, formed a distinct affection.—Mr. SYMONDS had seen two cases that recovered. He thought the best explanation was that of a general infection. He related a case that manifested itself locally in the pectoral muscle after a very slight injury of this muscle.—Mr. DREW said that impetigo was an occasional mode of entry

of such infections in children.—Dr. F. DE HAVILLAND HALL related three cases of abscess of muscle in which there had been great difficulty in diagnosis.—Dr. W. ESSEX WYNTER said that a number of cases existed in foreign literature. He detailed a case that had run a typhoid course and which after death had been found to be one of suppurative psoasitis, the organism being the micrococcus pyocyaneus.—Mr. C GORDON WATSON likened the cases to acute osteomyelitis. He related two cases of staphylococcic psoasitis occurring during the puerperium, apparently apart from parametritis.—Mr. MCGAVIN discussed the anatomical reasons why the psoas was so frequently affected in this disease.

Mr. G. H. MAKINS and Mr. P. W. G. SARGENT communicated a note on the Value of the Anti-Colon-Bacillus Serum. The paper contained a tabular statement of the histories of 25 cases of acute appendical peritonitis treated by injections of a multivalent serum prepared from strains of bacillus coli communis. The serum was prepared by Mr. H. H. Dale of the Wellcome Research Laboratories at the instance of Mr. L. S. Dudgeon by the following process. A horse was immunised by receiving 14 injections of 10 cubic centimetres of seven days' broth culture of eight strains of bacillus coli from cases of puerperal fever, at intervals of seven days. Then seven injections of 5–20 cubic centimetres of a washed culture of bacillus coli of unknown origin were given at intervals of ten days. Finally, one injection was administered of five cubic centimetres of three weeks' growth in lactose broth of seven strains of unknown origin, seven strains separated by Mr. Dudgeon from cases of peritonitis, and eight strains from cases of puerperal fever. In all cases the cultures injected were killed by the addition of 0·1 per cent. chinosol. The 25 cases were of the severe type, six of them probably being such that no good effect could be anticipated. Of the whole 25 nine, or 36 per cent., recovered. In all the other cases improvement followed the use of the serum, the toxic symptoms were relieved, the infecting area became limited, and in cases that died the end was delayed beyond the period usual in the disease. It was claimed that the general improvement in the patient's condition, the fall in the pulse-rate and temperature (either temporary or continued), and the relief in many cases from vomiting obtained by the use of the serum justified its more extensive trial. Hitherto the serum had only been employed in the worst type of case. The effect in some cases only seemed to be a temporary one. The treatment was in no way harmful or dangerous. The dosage was empirical but it might be as much as 40 cubic centimetres. A successful case of treatment by this serum of an acute infection of the urinary tracts by colon bacillus under Dr. H. G. Turney and a report on the treatment of three cases of puerperal sepsis by Dr. A. K. Gordon of Manchester were also alluded to.—Mr. DUDGEON believed that the treatment would be very much more efficacious if employed at an earlier stage. The treatment had been of value in cases attended with marked constitutional symptoms—e.g., pyrexia, rigors—but for more chronic cases without constitutional symptoms the method was valueless.

LIVERPOOL MEDICAL INSTITUTION.

Suppurative Cholecystitis.—Benign Cysts of the Long Bones.—The Rôle of Mercury in Modern Therapeutics.

A MEETING of this society was held on April 4th, Mr. F. T. PAUL, the President, being in the chair.

Mr. T. C. LITLER JONES read a note on Suppurative Cholecystitis with Perforation of the Gall Bladder, mentioning three cases under his care which had recovered. In one case the gall-stones, after perforation of the gall-bladder, had collected in a large perinephritic abscess. This abscess had then opened into the pelvis of the kidney, some of the stones being passed out of the body through the urinary tract, others being removed from the kidney at the time of the operation. Some of the stones were partially encrusted with a deposit of phosphates. The other cases were acute and in both, after the peritoneum had been cleansed, the gall-bladder, the site of the perforation, and the abdominal incision were each separately drained. He attached much importance to early diagnosis, to the method of draining, and to the way in which the gall-bladder was stitched to the abdominal parietes, attempting where possible to have the edges of the incision into the gall-bladder invaginated in order to facilitate the early closing of the biliary fistula.

Mr. ROBERT JONES and Dr. DAVID MORGAN communicated a note upon Benign Cysts of the Long Bones and reported four cases, three of which appeared in the proximal phalanx of the index finger and one in the centre of the ulna. After referring to the literature an attempt was made to simplify the differential diagnosis both by differences in x ray appearances and by other clinical signs.

Dr. W. CARTER, in his paper on the Rôle of Mercury in Modern Therapeutics, did not include any consideration of the employment of the drug in the treatment of syphilis. He thought its use was neglected and mentioned (1) cases of lymphatic block with enormous swelling but no escape of fluid through Southey's trocar; (2) peritonitis; (3) of cerebral meningitis, even when suspected to be tuberculous; and (4) of chronic cardiac disease when death appeared to be imminent: in all of which the free use of mercury either internally or by inunction, and in meningitis accompanied by blistering of the scalp, was followed by relief, and where the organic changes were not such as to render recovery impossible, by recovery. Five cases were mentioned of the control of the delirium which sometimes accompanied rheumatic fever and of the persistent headache of robust men in whom there was no fever by five grains of calomel, even though the purgative effect was less than that produced by other cathartics. He showed three bottles, in one of which bile alone had been kept for ten days, in a second bile with two and a half grains of calomel, and a third in which calomel had only been added to the bile after the terribly offensive odour which characterised the contents of the first bottle had been developed, and asked if the freedom from, and correction of, decomposition in the two latter might not possibly help to explain the utility of the drug. Its insolubility allowed it to be conveyed to the duodenum unchanged, where it came into contact with the bile and pancreatic fluid, over which latter it could be shown to exercise a similarly antiseptic action, and it was not unreasonable to suppose that absorbable toxins were so influenced by it as to be rendered harmless.—Dr. F. H. BARENDT regarded mercury as second only in importance to opium, and in cutaneous medicine, apart from syphilides, mercurial preparations were among the most valuable in treating chronic skin diseases. He extolled the use of unguentum hydrargyri subchloridi, linimentum hydrargyri, and unguentum hydrargyri iodidi rubri in brawny infiltration as a result of chronic eczema. Internally the alterative action of mercury could scarcely be over-estimated and he drew attention to its administration in psoriasis after the eruption had been removed by external medication as a prophylactic against recurrence. He quite agreed with Dr. Carter that it was most important to give exact instructions to the patient even at the risk of stating the self-evident.—Dr. B. SUMNER considered that the intestinal antiseptic property of mercury was indirect, being in a great measure attributable to the increase in the output of bile, which acted as the best of all intestinal antiseptics.—Mr. S. KELLETT SMITH drew attention to the danger of administering mercurials to feeble old people with septic mouths. In such cases dangerous salivation might ensue from even single doses of calomel or blue pill. He had found phenolphthalein in eight grain doses a good purgative when there was reason to fear any ill-effect from a mercurial.—Dr. J. LLOYD ROBERTS referred to the benefit derived from the occasional use of mercurial preparations in the treatment of chronic valvular disease of the heart where failure of compensation was threatening.—Dr. T. R. GLYNN, Mr. W. B. BENNETT, Dr. E. T. DAVIES, and Dr. C. J. MACALISTER also took part in the discussion.

The Development of the Cerebral Cortex.—Lymphatic Leukæmia.

A PATHOLOGICAL meeting of this society was held on April 11th, Mr. F. T. PAUL, the President, being in the chair.

Dr. J. SHAW BOLTON and Dr. GEORGE A. WATSON gave a lantern demonstration on the Mode of Development and Functional Significance of the Three Primary Cell Laminæ of the Cerebral Cortex of Man and of the Lower Mammalia. They stated that the neopallium was composed of five primary laminæ, of which the first and fourth were in essential structure fibre layers, while the second, third, and fifth were nerve cell layers. The undifferentiated cortex in the human subject consisted of a superficial and a deeper

layer of neuroblasts. From this basis were first developed the fifth, polymorphic, or inner cell layer and the fourth (inner line of Baillarger) or inner fibre layer. The third, granule, or middle cell layer developed next in order and the appearance of this was followed by the evolution of the second, pyramidal, or outer cell layer, *pari passu* with which occurred a further development of the first or outer fibre layer. The same order of development of the cortical layers had been found to hold good in several lower mammals. The fifth, polymorphic, or inner cell layer was the first cell lamina of the cortex to be differentiated during the progress of lamination. In the prefrontal region of a fœtus of six months it was separated off from the rest of the cortex by the fourth or inner fibre layer and was already within 29 per cent. of the normal adult depth. In a child aged six weeks it had advanced to within 18 per cent. of the normal adult depth. It was of extremely constant average adult depth. A very slight decrease existed in cases of high grade amentia and of chronic insanity with moderate dementia. A considerable decrease was found in more marked aments (whether normal aments, or idiots, or imbeciles) and in gross dements who were unable to carry on the ordinary animal functions, such as attending to their own wants. This layer also (especially if various mechanical factors which influenced the depth of a given cortical layer were taken into consideration) remained of fairly constant depth throughout the mammalian series. The fifth, polymorphic, or inner cell layer, therefore, in association with the fourth or inner fibre layer, subserved the lower voluntary and instinctive activities of the animal economy and thus formed a lower level basis for the carrying on of cerebral function. The third, granule, or middle cell layer was developed after the fifth or inner cell layer and before the second or outer cell layer. In the prefrontal region of a fœtus of six months it had just become differentiated from the outer cell layer and was already one half of the normal adult depth. In a child at birth it had become three-fourths of the normal adult depth. In old-standing or congenital optic atrophy the outer (and additional) of the granule layers was decreased in thickness by more than 10 per cent. and the line of Gennari by nearly 50 per cent. The middle cell layer exhibited comparatively little variation in depth (though much difference in form of constituent nerve cell) in homologous regions of the cortex in various lower mammals. The third, granule, or middle cell layer, therefore, primarily subserved the reception or immediate transformation of afferent impressions, whether these arrived immediately from the lower sensory neurons or indirectly through other regions of the cerebrum. The second, pyramidal, or outer cell layer was considered under two headings, according as it occurred in the human subject or in the lower mammalia. In the human subject the three following regions were described. 1. In the prefrontal region the pyramidal or outer cell layer was the last layer to develop. It was visible in a fœtus of six months and was at that time only a quarter of the normal adult depth. In infants at birth and at the age of six weeks it was still less than two-thirds of the normal adult depth. It was the only cell layer of the cortex which varied definitely in depth in normal brains. It was under-developed to different degrees in idiots, in imbeciles, and in chronic and recurrent lunatics without dementia. 2. In the visuo-psychic region the second, pyramidal, or outer cell layer developed earlier than in the prefrontal region. It did not in this region vary in depth according to the degree of dementia existing, although a small and practically constant decrease was evident in such cases. 3. In the visuo-sensory region the pyramidal, or outer cell layer developed much earlier than in the visuo-psychic and prefrontal regions. In the normal adult this cell layer in the visuo-sensory area was only about five-ninths of its depth in the visuo-psychic and prefrontal regions of the cortex. In the lower mammalia the pyramidal, or outer cell layer was the most variable in depth of the primary cell laminæ. It underwent on the whole a progressive increase in depth and complexity as the mammalian scale was ascended, in great contrast to the behaviour of the inner cell layer which remained much more constant in depth. In the best developed regions of the cortex in one of the insectivora, the mole, the second or outer cell layer was only about one-ninth of the depth of the corresponding layer in the normal human adult, whereas the combined fourth and fifth (inner cell layer) layers fell comparatively little short in the mole of the depth of these same layers in the normal adult human subject. The second, pyramidal or outer cell layer therefore subserved the "psychic" or associational functions of the cerebrum. In the human subject these functions were pre-eminent in the pre-frontal region, they were less important in the visuo-psychic region, and they were of least importance in the visuo-sensory region. These three areas were therefore of different grades in the hierarchy of cerebral function.

Dr. WILLIAM B. WARRINGTON showed preparations of the blood and bone-marrow from a case of Chronic Lymphatic Leukæmia.

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held on April 5th, Dr. Robert Grant being in the chair.—Professor J. A. C. Kynoch showed two patients who had been successfully Delivered by Cæsarean Section. The first was a primipara, aged 31 years, with no outward appearance of deformity, but who nevertheless had a very flat pelvis with a conjugate diameter estimated at two and three-quarter inches. Labour had been in progress a few hours before she was seen. She made a good recovery. The second patient was a young woman who suffered from typical symptoms of rickets, being short in stature and markedly knock-kneed. She had been under observation for several weeks and the conjugate diameter was estimated at two and a half inches. The operation was performed after she had been some time in labour and recovery was good. Professor Kynoch considered it best to operate after labour had been in progress a few hours in order that the cervix might become sufficiently dilated to allow a free exit to all the lochial discharge. He sterilised both patients by ligature and division of both Fallopian tubes —a course which he considered advisable in all such cases.—Dr. Thomas F. Dewar, medical officer of health of Forfarshire, read a paper on Water-borne Enteric Fever in the Noran Valley. The outbreak, which included some 24 cases, all but two of which were certainly associated in origin, was ascribable to infection introduced into the upper waters of the River Noran in connexion with an encampment of labourers employed in the construction of a dam and reservoir there. Despite the fact that the Noran is a highland stream, bright, lively, of rapid fall and consequent free aeration, and that the pollution was at all times infinitely small relatively to the total volume of the stream, the infection of enteric fever was borne down for several miles and intermittently for several months to houses by the river side in the lower valley whose inhabitants drew their water-supply from this source. Thus new foci for the further diffusion of the illness were established. From one of these, a farmhouse where several children were infected, the illness was further disseminated by means of milk. Thus, by the establishment of the secondary foci, the epidemic continued for several months after the sanitary arrangements at the original site of pollution had been rendered unexceptionable in every respect.—Dr. A. McGillivray read a paper on the Uses and Limitations of Argyrol in Ophthalmic Practice. He stated that from his clinical experience he considered argyrol to be the most useful of all the now numerous silver salts. It was distinguished by the high percentage of silver it contained, its easy solubility in water, its great penetrative powers, its bactericidal qualities, and, above all, its freedom from irritating properties, even in a solution of 25 per cent. strength. It was objected to by some on account of its staining of the skin and handkerchiefs, but the stains of the skin could easily be removed by water and those on linen by an aqueous solution of perchloride of mercury of strength 1 in 1000. Ophthalmia neonatorum could be successfully treated by instillation of six drops of a 25 per cent. solution every hour, with frequent washing with saline solution. Gonorrhœal ophthalmia in the adult required the same strength of solution. In simple purulent conjunctivitis nothing was better than a 10 per cent. solution of argyrol, but in subacute or chronic cases if the discharge of pus had ceased it was better to use more astringent remedies, such as boric acid, zinc, or alum. In very chronic cases a 2 per cent. solution of nitrate of silver was best to use. For simple corneal ulcers a 10 per cent. solution with ½ per cent. of atropine gave excellent results. For follicular and phlyctenular conjunctivitis the older remedies were better. In obstruction of the tear duct and simple epiphora a 10 per cent. solution injected down the duct with passage of a small probe gave excellent results. In preparing the eyes for cataract operation a 10 per cent. or 20 per cent. solution was most useful to clear away any inflammatory condition. On account of its harmlessness it

could be given to all patients with perfect safety for home use.—Dr. E. F. Macleod Neave read a paper on the Action of Digalen on the Circulation. He said that the variability of the preparations of digitalis was well known. Not only did the activity of the fresh leaves themselves vary considerably, but the leaves, though carefully preserved, gradually deteriorated and lost their pharmacological activity. This was also true of the usual preparations of digitalis—namely, the infusion and the tincture. Digalen was introduced by Professor Cloetta in 1904. It was a colourless liquid with a slight ethereal odour and a bitter taste and was said to be a solution of amorphous digitoxin in water with 25 per cent. of glycerine added. Each cubic centimetre contained 0·3 milligramme of amorphous digitoxin. This solution was said to be more stable and more certain and uniform in its action and less irritant than other digitalis preparations, as well as less liable to produce cumulative effects. In order to test the preparation Dr. Neave made experiments on the isolated frog's heart, the blood-vessels of the frog, and the blood pressure of rabbits, and compared the results obtained with those got from tincture of digitalis and crystallised digitoxin. The conclusions arrived at were as follows: 1. Digalen had a tonic effect on the heart muscle, slowed the cardiac rhythm, and increased the force of ventricular contraction. On the frog's heart in large doses it produced powerful contractions and the heart eventually stopped, firmly contracted in systole. 2. It produced a local constricting effect on the blood-vessels and raised the blood pressure. 3. It was less powerful than tincture of digitalis and much less powerful than crystallised digitoxin of corresponding strength.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on April 11th, Mr. W. D. Spanton, the President, being in the chair.—Mr. F. B. Jessett showed a specimen of Extra-uterine Pregnancy occurring in a patient, aged 30 years, who complained of a lump in the left side of her abdomen which had been getting larger for the past three or four months. She had never been pregnant but her last menstrual period was five months previously. Two months ago after exertion she felt ill and had to keep in bed where she remained six weeks suffering from pain and vaginal hæmorrhage. The swelling continued to increase up to the time of her admission. On examination a hard irregular mass was found in the left iliac fossa, extending to the pubes and above the umbilicus, which was painful midway between that and the left anterior superior spine. Cœliotomy revealed a gestation sac between the layers of the broad ligament with extensive adhesions. The sac contained a dead fœtus of five or six months which was readily removed with the attached placenta. Every attempt to remove the sac caused hæmorrhage which was controlled by pressure and ligature. The sac was brought into the superficial wound and the cavity plugged. Convalescence was uninterrupted. —Mr. Jessett also read notes of a case of Ruptured Ovarian Cyst, followed by generalised peritonitis of a malignant nature with secondary growth in the uterus and vaginal walls appearing some months later. The patient, aged 35 years, had been operated on 15 months previously for ruptured ovarian cyst and returned complaining of pain in the right iliac fossa and metrorrhagia. On examination the uterus was found to be retroverted and mobile. In the recto-vaginal septum a small hard swelling was found which readily bled when touched. This mass was excised before removal of the uterus by the vagina. The growths in the ovary and uterus presented similar histological characters and consisted of cystic formation and intra-cystic papillæ. Convalescence was satisfactory during observation.—Dr. Macnaughton-Jones then read a paper for Professor Jacobs of Brussels entitled "Radical Cure of Prolapse of the Uterus." This method was used only in severe cases and had been tried in 77 such with ages varying from 43 years to 71 years. Five of these showed a slight relapse, consisting of cystocele with prolapse of the anterior vaginal wall. One death occurred which was due to stomachic causes. The operation is called abdominal colpopexy and consists of median cœliotomy followed by strong traction on the uterus in an upward direction which was then carefully released from its attachments and hæmorrhage checked. The uterus was held then only by its attachment to the vagina. The section of the latter must be made low down in proportion as the prolapse was pronounced. The vaginal incisions were V-shaped anteriorly and posteriorly with widely separated limbs above at the insertion of the vagina to the uterus. The margins of the incisions were then united by sutures and the knots turned into the vagina. The pelvic floor was then reconstructed by whipping together the cut surfaces of the broad ligaments on each side, including the round ligament. The broad ligaments of opposite sides were then united above the newly formed vaginal vault. To prevent any return of prolapse the round and uterosacral ligaments on both sides were united to the vaginal stump which was thus raised up in the middle of the pelvic cavity.—In the discussion which followed Sir William Smyly was surprised at the successful results and thought that in cases where the pelvic diaphragm was destroyed the operation was deserving of trial. Cases ought to be operated on early.—Mr. Christopher Martin thought that this operation would fail in some cases and was in favour of using pessaries, but where they failed would resort to removal of the uterus and vaginal mucosa and then unite the pelvic fasciæ of opposite sides in the middle line.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 3rd, Mr. E. Powell, the President, being in the chair.—Dr. W. Tibbles read a paper on the Treatment of Diabetes in which he pointed out that many remedies had been given with the object of correcting the glycogenic function. Sodium salicylate and uranium nitrate were of service in mild cases and in old or gouty subjects. Alkalies were useful during the transition stage from ordinary diet to one poor in carbohydrate or highly nitrogenous. Large doses of sodium carbonate had a good effect in acetonuria. Opium and arsenic were pre-eminent amongst remedies and their action was through the nervous system. Glycosuria in depancreatised animals was checked by transfusion of normal blood, lymph, leucocyte extract, or vegetable glycolytic ferment. Hence, the proper treatment appeared to consist in furnishing such an enzyme, supposed to be supplied by the normal pancreas. Yeast, which was a glycolytic agent, had therefore been used, but with varying success. Jambul was of value in diabetes and its action might be due to an enzyme, but it was untrue that it prevented sugar formation. Certain disinfectants, as creasote, iodoform, salicylic acid, aspirin, and benzosol, appeared to increase the patient's power of consuming carbohydrate with impunity. The ideal in diet was physiological equilibrium and over-nutrition was as bad as under-feeding. The nitrogenous intake and output ought to be watched as carefully as the carbohydrate. In any case diet must be the basis of all treatment for diabetes.—The paper was discussed by the President, Dr. J. Watson, Dr. F. H. Jacob, Dr. A. Fulton, and Dr. T. Henderson, and Dr. Tibbles replied.—Dr. Watson showed a specimen of Ovarian Myoma from a patient, aged 31 years, removed by operation. The tumour weighed 1 pound 3 ounces. On section it was found to be an ovarian myoma with very pronounced "whorling" of the fibres so that very few neighbouring fibres were cut exactly in the same direction. An area of softening was found passing from the point of attachment to the ovary up to the middle of the tumour.—Dr. Watson also showed a fresh specimen of ovaries removed for abscess. The larger one was of the size of a duck's egg and had walls a quarter of an inch thick. There was a typical pyogenic membrane, but even the walls showed numerous small abscesses and a multitude of points of leucocytic infiltration. He suggested the term "pyo-cöphorosis" for such an ovary, on the analogy of the suppurating kidney (pyonephrosis).

SOUTH-WEST LONDON MEDICAL SOCIETY.—A clinical meeting of this society was held on April 10th, Dr. M. Mackintosh, the President, being in the chair.—Dr. E. A. Peters showed cases of Thyrotomy for Fibroma of the Vocal Cord, Lupus of the Pharynx, Killian's Operation for Empyema of the Frontal Sinus, and Operation for Empyema of the Sphenoidal Sinus.—Mr. G. S. Hughes showed a case of Wiring Compound Fracture of the Humerus, Suture of the Posterior Interosseous Nerve, and two cases showing the results of immediate and deferred Operation for Rupture of the Urethra.—Mr. D. F. Shearer introduced a discussion on the Early Differential Diagnosis of Abdominal Pain, arguing that the present methods of arriving at a diagnosis were faulty since capable and experienced men frequently came to different conclusions with regard to the same case. He put forward the view that the diagnosis should always be based upon a consideration of the nature of the pain alone; that mistakes often arose from the consideration of signs and symptoms which were accidentally present. Pain was to

be considered under two headings, character and locality. The character of the pain varied with the tissue affected and the disease affecting it, but was constant for the same tissue similarly affected; pain due to intestinal colic being essentially different from that due to calculus, and this again bearing no resemblance to pain due to peritoneal affection. In addition to the classical instances where a localised pain is recognised as diagnostic of a certain condition recent researches had tended to show that all parts of the abdominal content were in relation to definite sensory areas; he held that sooner or later a knowledge of these relations would form a sound groundwork for diagnosis. He pointed out that referred and associated pains were best eliminated by full doses of opium and that the phrase "opium masks symptoms" was misleading, as opium tended to diminish the accessory and irrelevant pains and to bring into prominence those which were essential for diagnosis. Mr. Shearer illustrated his remarks by cases which had come under his observation.—In the subsequent discussion the general feeling appeared to be that while no doubt many errors were made it was impossible to come to a definite conclusion in many cases without laparotomy, that no trustworthy diagnosis based upon pain alone could be made, while it was not desirable to introduce a method which might lead to less thorough and careful physical examination of the abdomen.

BRADFORD MEDICO-CHIRURGICAL SOCIETY AND BRADFORD DIVISION OF THE BRITISH MEDICAL ASSOCIATION.—A conjoint meeting of the above societies was held at the Bradford Royal Infirmary on March 19th, Dr. J. Basil Hall being in the chair.—Mr. J. Wherry Willson read a paper entitled "Some Remarks on Forceps Delivery." He said that many affections of childhood associated with head symptoms and having one common cause (namely, pressure) were attributed to the two factors, forceps delivery and prolonged labour. The most extreme manifestation of this was death of the child. Dr. A. L. Galabin's figures were given comparing the ratio of stillbirths in the obstetric practice of Guy's and St. Thomas's Hospitals, and quotations were made from the statistics of Dr. Fletcher Beach and Dr. R. L. Langdon-Down showing that idiocy was more often associated with a history of prolonged labour than with a history of forceps delivery. As regards the mother, it was stated that pelvic cellulitis was exceedingly frequent nowadays, and it was suggested that the growing practice of using drugs and appliances for the purpose of procuring abortion, with the subsequent neglect of miscarriage, might be important factors in the causation of this disease. The opinion was expressed that ruptured perineum, so often attributed to the use of forceps, was quite as likely to occur in cases left to nature and to be almost as liable to be caused, or at least extended, by the shoulders as by the head. When a practitioner found that his use of forceps was persistently accompanied by ruptured perineum he ought to consider whether there was not something wrong with his methods of application. With care and with antiseptic precautions forceps might be used with safety and advantage at an earlier period than some obstetricians believed. Mr. Willson considered that in this respect Playfair took the most practical view. The practice of undue and too early interference was strongly condemned, the whole address being practically a plea for moderation and restraint.—The paper was discussed by Mr. W. G. Burnie, Mr. R. Mercer, Dr. T. W. Hime, and others.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 14th, Mr. Russell Coombe, the President, being in the chair.—Dr. J. Mortimer reported two cases of Gastric Tetany occurring in adult males. The patients exhibited tetanic spasms of momentary duration and not very painful; heartburn and tenderness along the œsophagus, due to a spasm of the œsophagus imprisoning a bubble of air; a peculiar stretching of the limbs also occurred, with twitching of muscles, hurried breathing, and a feeling of oppression. Transitory albuminuria was present and indican was found in the urine. Alcohol, and especially port and champagne, always caused a recurrence of the symptoms. Dr. Mortimer referred to the experiments which proved that when the parathyroid glands were removed tetany occurred, and the poison causing this could be neutralised by parathyroid extract, but injection of blood from cases where parathyroids had been removed did not cause tetany. In Dr. Mortimer's cases there was no dilatation of the stomach but hyperchlorhydria was present. There was no obvious disease of the thyroid gland. As regards treatment intestinal disinfectants were useless. Bismuth, in big doses combined with soda, gave relief and a bi-weekly mercurial pill was useful. Diet did not appear to have much influence on the cases. The attacks occurred many times.—Mr. G. L. Thornton read a paper on the Systematic Examination of the Urine.

Reviews and Notices of Books.

Die Bacteriologie in der Augenheilkunde. (*Bacteriology in Diseases of the Eye.*) By Dr. THEODOR AXENFELD, Professor of Ophthalmology in Freiburg. With 87 figures (partly coloured) in the text and three coloured plates. Jena: Gustav Fischer. 1907. Pp. 362. Price (bound) 13 marks.

OPHTHALMIC bacteriology has grown during the last 20 years into so large and important a subject that it has become a department which can no longer be neglected by the ophthalmologist. The discovery of the Koch-Weeks bacillus in 1884, that of the Morax-Axenfeld diplo-bacillus in 1896, and the establishment of the etiological relationship of the pneumococcus to hypopyon ulcer by Uhthoff and Axenfeld also in 1896 signalise the most striking developments in its history. The mere mention of these landmarks shows the pre-eminent position which Professor Axenfeld occupies in this field of research. Ten years have elapsed since his name became associated with that of Morax as the simultaneous but independent discoverer of the diplo-bacillus which causes angular conjunctivitis. Professor Axenfeld has paid a graceful tribute to his French *confrère* in dedicating this work to him.

An enormous mass of literature has accumulated upon the bacteriology of ocular diseases. Some of this is valuable, much is worthless, and the separation of the true from the untrustworthy is difficult and often impossible for those who have not actually worked at the subject. Particularly is this the case owing to the many observations by ophthalmologists who are not trained bacteriologists, while even the competent bacteriologist is liable to fall into error unless he has paid special attention to diseases of the eye. No one is so fitted for the task as Professor Axenfeld, who combines the rôles of bacteriologist and ophthalmologist in an equally conspicuous manner. He has not only distinguished himself by his own original observations but has gathered around him a band of ardent disciples, so that Freiburg has become the Mecca of ophthalmic bacteriology. Further, he has kept fully abreast of the work of others in the same field, as is shown by his *résumés* of recent advances in the subject in the volumes of Lubarsch and Ostertag's "Ergebnisse" (1894–1900) and in Kolle and Wassermann's "Handbuch der pathogenen Mikroorganismen" (1903). His "Special Bacteriology of the Eye" in the latter publication has until now been the most authoritative exposition of the subject at the command of students, but it was difficult of access and could not be obtained separately. The author has now expanded it into the present work which will probably long remain the text-book *par excellence*.

The book commences with an introductory chapter on technique—methods of obtaining material from the conjunctiva, cornea, anterior chamber, &c., staining of films and sections, cultivation of organisms, and the inoculation of animals. The bacterial flora of the normal conjunctival sac is then discussed and the paradoxical results of various investigators are considered and explained. The different parts of the eye in diseased conditions are taken seriatim, chapters being devoted to the lids, infection of wounds, conjunctivitis in general, special forms of conjunctivitis, the lacrymal apparatus, and the cornea. Leprosy, tuberculosis, and syphilis of the eye are discussed, followed by chapters on

endogenous infections of the eye and diseases of the orbit and accessory cavities. Each section is provided with an exhaustive bibliography. Admirable coloured drawings of the organisms in films are given, as well as photographic reproductions of cultures in many cases.

Whilst the work is a complete text-book of the bacteriology of the eye in its purely scientific aspects the practical applications to clinical ophthalmology are constantly borne in mind. The difficulties of diagnosis—of the xerosis bacillus from the Klebs-Löffler bacillus, of the gonococcus from the meningococcus and the micrococcus catarrhalis, of the Koch-Weeks bacillus from the influenza bacillus, and so on—are treated in a masterly manner. A valuable table of the differential diagnostic features of cultures is inserted. The serum treatment of diphtheria and of hypopyon ulcer, and the uses of tuberculin in diagnosis and treatment with the importance of opsonins as a control, receive thorough attention.

This work, more than any other with which we are acquainted, emphasises the preponderant rôle of bacteriology in the investigation and treatment of infective diseases of the eye, diseases which form such an enormous part of ophthalmology. The bibliographies which Professor Axenfeld has collected show that English observers have played a part, though a relatively small part, in this research. The application of bacteriology to ophthalmic practice has not here received the attention which it deserves, and, if patients are to be treated upon rational principles, demands. Professor Axenfeld does not minimise the difficulties of differential diagnosis, and a careful survey of the situation shows that bacteriology to be of practical utility must be no perfunctory side issue, relegated to a clinical ophthalmologist as a subsidiary duty, but that it must be the function of a trained bacteriologist. This defect has not yet been remedied in any British ophthalmic hospital, but we have reason to believe that one of our London ophthalmic hospitals will soon be fully equipped with a special bacteriological laboratory under the supervision of a trained bacteriologist.

The Diagnosis of Nervous Diseases. By PURVES STEWART, M.A., M.D. Edin., F.R.C.P. Lond., Physician to Outpatients at the Westminster Hospital; Joint Lecturer on Medicine in the Medical School; Physician to the Royal National Orthopædic Hospital; Assistant Physician to the Italian Hospital. London: Edward Arnold. 1906. Pp. 380. Price 15*s*.

THE subject of diagnosis of diseases of the nervous system is a difficult one. As Dr. Stewart states in his preface, it is seldom in clinical medicine that nervous diseases are met with in typical forms, at least in the forms which text-books seem to describe as typical. Anomalies in the course of various diseases are constantly met with and prove most puzzling to the practitioner but no text-book can deal with the numerous exceptions to what appear to be the rules. The present volume approaches the subject of nervous diseases purely from the clinical standpoint and abstruse details of theoretical interest are wisely avoided. Treatment also is not discussed, save incidentally.

After a brief consideration of the anatomy and physiology of the nervous system, quite sufficient for the needs of practical work, some useful hints are given as to the methods which should be employed in case-taking. The various signs and symptoms of nervous diseases are discussed and illustrated by records of clinical cases. The subject of coma is admirably described and the differential diagnosis of the various morbid processes which may induce this condition is carefully considered. The lecture on fits and other convulsive phenomena is also worthy of notice and the classification adopted will be found a useful and practical one. The description of the various forms of paralysis produced by affections of the cranial nerves is lucid and easily followed. In referring to lesions of the optic nerve a method is described by which the physician can obtain a satisfactory estimation of the size of the field of vision without employing a perimeter. This is a matter of considerable importance in general practice, especially when patients have to be seen in their own homes; if the field of vision can be gauged without the employment of a large and expensive instrument a great point has been gained. The record, of course, is not so accurate as when a perimeter is used; nevertheless, it is sufficient for most practical purposes. The lectures on organic paralysis of the upper and lower neuron types respectively contain a large amount of information which will be found instructive to the student and useful for reference by the practitioner. The same remark equally applies to the remaining portions in the book. The whole work is well written and we can cordially recommend it to our readers. Instead of being divided into chapters the book is divided into a series of "lectures," many retaining the original form in which they were delivered. This is by no means a drawback, as it introduces a sense of spontaneity into the remarks which is liable to be absent in the ordinary text-books.

Dr. Stewart does not intend that this volume should replace the manuals and more elaborate treatises already published. As a supplement to them, however, and as an aid to practical work it will be found most valuable.

The Practical Medicine Series: Gynecology. Edited by E. C. DUDLEY, A.M., M.D., and C. VON BACHELLE, M.S., M.D. Series 1906. Pp. 227. Price 5*s*. *Obstetrics.* Edited by JOSEPH B. DE LEE, A.M., M.D., with the collaboration of D. ROEHLER, M.D., and HERBERT M. STOWE, M.D. Series 1906. Pp. 256. Price 5*s*. Chicago: The Year-book Publishers. Glasgow: G. Gillies and Co.

THESE two volumes form part of the Practical Medicine Series and are intended to give a *résumé* of the more important advances in the two subjects, obstetrics and gynæcology, during the year 1906. In the volume dealing with obstetrics the most interesting sections are those relating to eclampsia and pubiotomy. A *résumé* of Zweifel's theory that eclampsia is due to lactic aciduria is given. This observer found, on a careful examination of the blood and the urine of 17 eclamptics, lactic acid present in the form of crystals of zinc paralactate. This is supposed to be due to imperfect oxidation and to be derived from the meat taken as food. Zweifel considers it a most important indication of the necessity for interference in such cases, and as lactic acid tends to appear after the use of morphine it forms a contra-indication to the use of the latter drug. Venesection and the subcutaneous injection of a solution of sodium chloride and sodium bicarbonate are of great importance as well as the use of oxygen and the faradic current to stimulate deep inspirations. Füth and Lockemann in the cerebro-spinal fluid of three eclamptics were able to demonstrate the presence of lactic and paralactic acid. The editor thinks that the evidence of the year's work shows that immediate delivery is the most important method of treating eclampsia, a conclusion which obstetricians in this country will be slow to accept. A considerable amount of space is devoted to vaginal Cæsarean section and dilatation of the cervix uteri. The former is illustrated with some good drawings. A very good *résumé* is given of the recent literature on pubiotomy. The following advantages are claimed for this operation: that it is less dangerous than symphysiotomy, bony union is more likely to occur, there is less danger of injury to the soft parts, as great enlargement of the pelvis is obtained, and there is less liability of injury to the structures lying under the pubic arch. Most obstetricians now perform the operation subcutaneously, a small incision being

made over the tubercle of the os pubis, the soft structures are separated from the posterior surface of the bone with the finger, and by means of a large needle which is passed subcutaneously and made to emerge in the labium majus as far from the vulvar orifice as possible the flexible saw is carried round the bone. The latter is then sawn through and delivery effected by version or forceps. The operation is still on its trial, but seems to give good results. An examination of the volume on Gynecology gives the impression that any advance there may have been during the year has not been great, judging by the various papers which are summarised in this report. There is but little that requires an extended notice. There is much which we hope may soon be forgotten, or at any rate not put into practice by any but its authors—for example, the operation devised for the treatment of anteflexion, a condition which, in our opinion, never requires operation beyond dilatation of the cervical canal. The introducer for tampons figured on p. 42 is a very old friend, a similar instrument having been in use in some London hospitals for the last 15 years at least. It is a pity that the editors have not been a little more discriminating in their choice of the papers they have selected for abstraction. If we judge by the remarks accompanying many of the abstracts, at any rate in the volume on Obstetrics, in many instances they are not in agreement with much that they reproduce. We think a still further improvement would be not to reproduce what they obviously disapprove of. If they will exercise their editorial functions a little more severely in future the quality of the matter in their year-books will certainly be improved. For all this these two works are much more readable than such books generally are.

Anæsthetics: a Practical Handbook. (Medical Monograph Series No. VII.) By J. BLUMFELD, M.D. Cantab., Senior Anæsthetist to St. George's Hospital. With 15 illustrations. Second edition. London: Baillière, Tindall, and Cox. 1906. Pp. 117. Price 2*s.* 6*d.* net.

THIS excellent little manual has been brought up to date by a chapter dealing with the use of ethyl chloride, both alone and in sequence with ether. It is pointed out in these pages that although ethyl chloride is useful in brief and minor operations, it is not free from danger and is not applicable for all persons. Although dealt with in a short chapter the student will learn from Dr. Blumfeld the method of its employment, its limitations, and some at least of the possible dangers attendant upon its administration. In the present volume the simplest methods of presenting chloroform are described, but the author points out that regulating inhalers, when efficient, lessen the dangers of overdosage by chloroform. Even in a manual intended for students the advice given that familiarity should be acquired with the use of such inhalers is well considered. Fig. 11 is not the best form of Junker's inhaler and might be replaced with advantage, as the other illustrations are above the usual level of those found in books upon this subject. Dr. Blumfeld's handbook does not present, perhaps, the subject very broadly or attempt to include the many vexed questions involved in the art of the anæsthetist; it aims rather at dogmatic teaching on quite definite lines and at supplying such essentials of the art as Dr. Blumfeld's own experience has shown him to be most serviceable to the beginner. In this Dr. Blumfeld has been successful and the result increases the value of the book from the point of view of the beginner. The writing is plain, the directions are clear, and the subjects dealt with have been carefully considered, while the size of the book has been kept within the most moderate dimensions.

LIBRARY TABLE.

Burdett's Hospitals and Charities for 1907. London: The Scientific Press. Pp. 963. Price 7*s.* 6*d.* net.—Sir Henry Burdett's Hospital Annual shows no falling off in its utility. The editor in his preface foreshadows a possible future issue of one hospital year-book for the English speaking world, and in anticipation of such a *rapprochement* he again includes an excellent chapter on the Progress of Hospital Life in the United States from the pen of Dr. S. S. Goldwater. The nursing information contained in former editions of the work has been transferred to "The Nursing Profession," a book issued by the same publishers. Chapters are included dealing with Misuse of Hospitals, the King's Fund and League of Mercy, Hospital Saturday and Sunday, Hospital Finance, and other topics; the first of these deals, *inter alia*, with the conference held on the subject of hospital administration under the auspices of the British Medical Association in December last. Chapter XI. gives an interesting statistical comparison between the expenditure of various classes of hospitals in 1904 and 1905, and on a later page is a table comparing the numbers of beds and patients with daily cost of 46 typical general hospitals throughout the English-speaking world; the value of this table would be enhanced by adopting a uniform standard of coinage in the latter column. The main body of the book is made up of the usual mass of carefully collected information about individual hospitals in the British Isles, the colonies, and America, information which makes the book indispensable as a work of reference.

The Local Government Annual for 1907. London: The Local Government Journal Office. Pp. 278. Price 1*s.* 6*d.* net.—This work forms a directory of Local Government officials throughout the country, full information being given of the metropolitan borough councils and boards of guardians and also about the various municipal services, libraries, and so on. The uses of such a volume are obvious.

Polypus of the Nose. By EUGENE S. YONGE, M.D. Edin., Assistant Physician to the Manchester Hospital for Consumption and Diseases of the Throat. With 20 illustrations. London and Manchester: Sherratt and Hughes. 1906. Pp. 174. Price 2*s.* 6*d.*—This small brochure affords an excellent example of what a brochure should be. The first chapter contains a brief historical review of nasal polypus, and the remaining chapters are devoted to the etiology, pathology, symptoms, diagnosis, prognosis, and treatment of the complaint. The writer's contention is in opposition to the theory of Woakes, more recently revived by Lambert Lack, which, broadly speaking, suggests that the ordinary mucous polypus has as its origin a localised patch of either periostitis or rarefying osteitis of the underlying bone. The theory which is now put forward by Dr. Yonge, and supported by very careful arguments, based on pathological and experimental observations, is as follows. That the process of polypus formation results from a chronic inflammation of the mucous membrane, dilatation of the glands lying within this area, and consequent œdema resulting from an increased pressure of the capillaries and increased permeability of their walls; these, together with a laxity of the surrounding tissues, produce folds or projections in the infiltrated mucosa, increase of the œdema in these folds, and hyperplasia of the fibrinous elements, and finally the formation of flat œdematous structures, containing the essential constituents of the nasal mucosa with a greater amount of fluid. That is to say, Dr. Yonge contends that the determining cause of the œdema is the intervention of certain mechanical changes in the mucous glands. This theory of Dr. Yonge is most interesting, especially as offering to many observers an explanation of all those cases in which mucous polypi occur as a complication of sinus disease and of certain cases of increased nasal

secretion. Whatever the ultimate view may be, we feel that the author, in setting forth his theory in so careful and able a manner, and withal so temperately, has done a good work in the interest of rhinology, and we strongly urge on those interested in the question of the etiology of nasal polypi to give this book their careful and close attention.

Thomas H. Huxley. By J. R. AINSWORTH DAVIS, M.A. English Men of Letters Series. London: Dent and Co. Pp. 288. Price 2*s.* 6*d.* net.—It was a difficult task to essay a biography of Thomas Henry Huxley after the appearance seven years ago of the admirable "Life and Letters" written by that great man's son. Mr. Davis's work has necessarily been one of condensation, for in his appendix he quotes no fewer than 19 other sources of biographical information. In this process of boiling down which the scope of the present volume called for much of the literary flavour of a fascinating and even romantic life-history has unavoidably been lost, for its pages are almost entirely devoted to a summary of his work and writings, scientific and critical. Of his splendid personality three pages at each end of the volume speak almost alone. But the facts that the author gives have been carefully collected and are clearly expressed and the work will fill an important place in its series.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXV., Nos. 3 and 4. March 25th and 27th. London: C. F. Clay. No. 3, price 5*s.* 6*d.*; No. 4, price 7*s.*—The lamented death of Sir Michael Foster, whose intelligent appreciation of the need of a separate journal for physiology led to the separation of physiology from anatomy, the two subjects having been previously combined in Sir William Turner's *Journal of Anatomy and Physiology*, has thrown the editorship of the *Journal of Physiology* into the hands of Professor Langley, who has for many years been associated with Sir Michael Foster and who is therefore perfectly familiar with the work. No. 3 contains an excellent reproduction of a recent photograph of Sir Michael Foster with an appreciative memoir,[1] and, in addition, the following articles. 1. J. G. Slade, On the Physiological Action of Muscle Extract. The muscle extract employed was either made from fresh muscle or was Liebig's extract after removal of the salts. It was found that, judged by the readings of an ergograph, 0·2 per cent. of the extract in food produces little or no effect on nervo-muscular energy but that about 0·4 per cent. exerts a decided stimulant action, or, more properly speaking, the onset of fatigue is delayed. With 2 per cent. solutions work is decreased. In the isolated heart of a pithed frog the frequency of the beat was increased when solutions containing small quantities (1 in 1000) were perfused, but stronger solutions depressed the heart and diminished both the rate and strength of the heart's action. Muscle extract has no stimulant action on the nervous system in man. With small doses there is initial dilatation of the vessels; with larger doses vaso-constriction takes place. 2. The Gaseous Metabolism of the Mammalian Heart, by Joseph Barcroft and W. E. Dixon. 3. On the Excretion of Nitrogen, Creatinine, and Uric Acid in Fever, by J. B. Leathes. The experimenter found the increased nitrogenous metabolism of fever involved an increased output of both creatinine and uric acid as of total nitrogen, the increased output being most marked in the case of uric acid. 4. Galvanotropism in the Crayfish, by F. R. Miller. 5. A Note on the Adrenal Gland in the Rat, by Chalmers Watson. Number 4 of the journal contains—1. Lactic Acid in Amphibian Muscle, by W. M. Fletcher and F. W. Gowland Hopkins. Difficulty was found by these experimenters in isolating the lactic acid, to overcome which the plan they adopted was to obtain a watery extract, to heat on a water bath, to add animal charcoal, and to filter. Resting muscle was found to contain very little lactic acid, but the quantity of the acid was largely increased by mechanical injury, by exposure to heat, and on chemical irritation. Lactic acid is spontaneously developed under anaerobic conditions in excised muscle. Fatigue due to contractions of excised muscle is accompanied by increase of lactic acid. The results of numerous experiments are given as well as a new colour reaction for lactic acid. This consists in adding a few drops of the solution suspected to contain the lactic acid to a mixture of strong sulphuric acid and a saturated solution of copper sulphate; this mixture is placed in a hot-water bath for a minute or two and a few drops of a dilute (10 to 20 per cent.) solution of thiophene in alcohol are added. A bright cherry-red colour appears which is permanent if the fluid is immediately cooled. 2. The Analysis of Excitable Tissues by their Response to Electric Currents of Short Duration, by Keith Lucas. 3. On the Elimination of Sulphocyanates from the Blood and their Supposed Formation in the Salivary Glands, by D. H. de Souza, B.Sc. This experimenter found that there was no evidence to show that the sulphocyanates are formed in the salivary glands, they are merely waste products eliminated by those glands from the blood in proportionate concentration to other salts. 4. The Action of Alcohol on the Circulation, by W. E. Dixon, M.D.

[1] The Journal of Physiology, March 25th, 1907.

New Inventions.

A NEW ALL-METAL SYRINGE FOR THE INJECTION OF EUCAINE.

THIS syringe, as depicted in the accompanying illustration, is a modified pattern of the original instrument invented by Mr. A. E. J. Barker and has been made by Messrs. Allen and Hanburys, Limited, of 48, Wigmore-street, London, W., to my suggestion. The syringe is of 20 cubic centimetres capacity and is constructed throughout of hard metal, so that there are no parts which can get out of order during the process of sterilisation. The metal piston is so

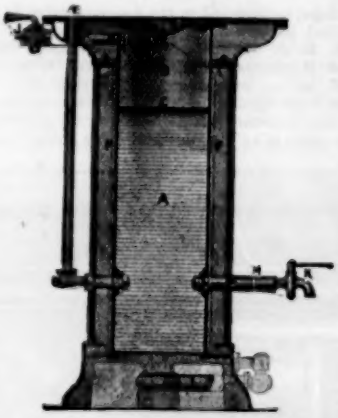
accurately ground to fit the barrel that a little sterilised oil is required to lubricate it before use. It is graduated and fitted with a revolving stop. There is no possibility of fluid getting behind the piston when injections are made into dense tissues, an advantage which users of the old syringe will at once appreciate. The connexions of the needle-carrier to the barrel are such as to prevent leakage at this point. The finger grips are large. The Schimmel's

needles used with this syringe are of larger gauge than were formerly employed, and the long cannulæ, as shown in the illustration, are also of correspondingly larger calibre. The needles do not corrode so quickly as the smaller ones and therefore can be used many times. The needles and cannulæ are contained in two metal tubes. The syringe and fittings are all nickel plated and are fitted into an aseptic case. The whole of the apparatus can be sterilised whenever necessary. The instrument has been tested very exhaustively in several large military hospitals during a period extending over six months and has given complete satisfaction. The cost of the syringe complete in case is 45*s*.

F. J. W. PORTER, Major R.A.M.C.

THE "CLIMAX" HYGIENIC GAS STOVE.

THE general principle upon which this stove works will be understood from an inspection of the section illustrated below. The stove represents an attempt to utilise gas as the source of heat and at the same time to avoid the contamination of the air with the injurious products of combustion and more particularly sulphurous and sulphuric acids. This attempt succeeds since a forced draught effected by a current of steam carries the products of combustion through a steam pipe or condensing tube away from the atmosphere of the room to the outside air. Assuming that this action is effectually done it matters little what is the nature of the products of combustion which a given gas burner may yield. A glance at the illustration will show that the stove consists practically of a boiler with a steam space at the top which is heated at the bottom by a small gas burner. The lid on the top is loose but its weight serves to allow a small pressure to accumulate in the boiler. The excess of steam escapes through a steam or condenser tube carrying by the action of injection the products of combustion away from the jacket (F F) in which they rise. This tube also serves to distribute the heat of the steam evolved. There is a glass water gauge (E) which enables the level of the water in the boiler to be seen, and also a tap (K) for drawing off hot



water. At M is a tee joining a ball valve tank so that a constant level of water in the boiler can be automatically obtained. The cock J is three way, so that steam may be turned on direct from the boiler to the jet or to the condensing tube. In this way the stove automatically removes the products of combustion and at the same time preserves a state of humidity of the air up to any point desired. The three-way cock also can never be shut off, so that there is always an outlet for the steam and there can be no danger of high pressure. The loose cast iron lid (D) is another safety valve, as is also the open water gauge E. It is stated that the stove has been used in rooms in which were placed plants that are known to be very sensitive to the destructive action of the combustion products of coal gas. The plants thrived, and this we can well believe since we found the steam escaping from the condensing tube to contain a considerable amount of sulphuric acid. The condensed liquid obtained during one hour's running contained nearly two grains of sulphur in the form of sulphuric acid. There can be little doubt that a further quantity of sulphur is carried away in a gaseous form, but even the condensed sulphur amounted to about 50 per cent. of the total contained in the gas before burning. This fact seems to us to warrant the statement that the stove is adapted for use in conservatories. In the dwelling room, too, it is an obvious advantage that sulphur compounds and other products of combustion should be kept out of the air that is breathed. The damaging effect of sulphurous products on picture frames, book covers, and so on, is well known. One other application of the stove should be mentioned, and that is for the purpose of evaporating antiseptic vapours. It is now recognised that disinfection can only be complete when the air and the surfaces it is required to disinfect are kept moist. The stove is the invention of Mr. James Rigg, engineer, of 11, Queen Victoria-street, London, E.C.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 18th, 1829.

TESTS OF ADULTERATED QUININE.

THE adulteration of quinine is carried to a greater extent than is generally supposed, while the necessity of having it genuine is most important. The high price it obtains, renders it a source of successful imposition to sellers, and of corresponding disappointment to consumers; and this is most probably the cause of the various degrees of benefit with which it has been used in the same complaint. The adulterations most frequently used, are, a peculiarly fine preparation of crystals of spermaceti, starch, and the gentianæ, a preparation partaking in a great degree (when carefully made) of the appearance of quinine, but cheaper and quite useless. For the detection of the latter, I am not aware of any infallible test, excepting that of a delicate taste, difficult to be explained, and only to be acquired by constant practice. A sure test to detect the presence of spermaceti, is to heat a piece of highly-polished iron to a dull red-heat, and to throw on it a few grains of the quinine. Should there be any spermaceti, the oiliness will become apparent; and if adulterated with starch, the heat will cause the quinine to adhere, which it will not do if unadulterated, but will exhibit a sparkling brown appearance, and a crispness to the touch. Another test is to mix the quinine with infus. rosæ, in which it should speedily dissolve; but if intermixed with starch, or spermaceti, or both conjoined, it will present, after having been allowed to stand a short time, a flocculated curdy appearance, and will not dissolve. The last is a beautiful and sure test, and the facility with which it may be made is another recommendation.

Islington. E. MOORE.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the above society was held on April 10th, Sir Thomas Smith, Bart., Vice-President, being in the chair; 13 directors were present. Proposals for membership of the society were read from three candidates and they were duly elected. Since the last court two members had died. The report and balance-sheet for 1906, to be submitted at the annual general meeting, were read and approved. Applications for relief were received from two widows of deceased members and grants at the rate of £50 per annum each were voted. One widow who was left in very indigent circumstances had been made an immediate grant of £10 10*s*. over and above the annual one. Eight letters had been received from the widows of medical men during the past three months asking for relief, but this had in each instance to be refused as their husbands had not been members of the society, relief only being given to the widows and orphans of deceased members. Any registered medical practitioner residing at the time of his election within a 20-mile radius of Charing Cross is eligible for membership. Full particulars and proposal forms may be obtained from the secretary at the offices of the society, 11, Chandos-street, Cavendish-square, London, W. The annual general meeting will be held on May 9th, at 5.30 P.M.

THE LANCET.

LONDON: SATURDAY, APRIL 20, 1907.

The Role of the Blood Plasma in Disease.

THE more our knowledge of the vital processes of complex living organisms advances the greater appears to become the importance of the circulating tissues—viz., the blood and the tissue fluids derived from it. It is of great interest to trace the gradual evolution of our information in this direction and the practical advances resulting therefrom. The fundamental discovery of the circulation of the blood by HARVEY has rightly been regarded as the basis of modern physiology, and the subsequent discovery of the blood corpuscles and of the capillary and the lymphatic circulations, all dating from the seventeenth century, served to emphasise the importance of the blood. Until the later years of the nineteenth century further advances were chiefly confined to the discovery of the oxygen-carrying power of the blood corpuscles, the physiology of the blood gases and of blood clotting, and the chemical analyses made of the blood plasma, which demonstrated the importance of the nutritive and excretory functions of the blood and its plasma. Recent researches, especially the remarkable discoveries in regard to internal secretions now so widely known, and the illuminating work of Professor E. H. STARLING and his co-workers on the hormones, have demonstrated the wonderful interactions of the various tissues and organs of the body exerted through the agency of chemical substances, in many cases too subtly complex in composition or too infinitesimal in quantity to be within the present grasp of the analytical chemist. Meanwhile the equally striking results of bacteriological investigations, notably those dealing with the subjects of immunity and the various reactions of living organisms to bacterial and other toxic products, have demonstrated the existence of a whole series of substances, often generally referred to as antibodies, which find their way into the blood and tissue fluids and thence exert effects so striking as to be truly marvellous—effects which invest this subject with a practical importance in regard to the prevention and treatment of disease which cannot be over-estimated. One outcome of the highly specialised and technical character of much of this recently acquired knowledge, and of the diverse aspects of the biological researches by which it has been achieved, is that the information is too often beyond the reach of the clinician and practitioner, who are concerned solely with its utilitarian aspects. Moreover, much of the work referred to, important as it is, comes hardly within the scope of the ordinary text-books on physiology, pathology, or medicine.

In a series of articles, entitled the Rôle of the Blood Plasma in Disease, by Dr. HARRY CAMPBELL,[1] much of this new work has been reviewed and correlated in our columns, and although the articles do not represent any actual new work they do more than afford a useful summary in which the practical applications of these important scientific discoveries are considered, for the author's remarks on the value and significance of what he describes are often most original and suggestive. After discussing what he calls the "plasmic environment" of the cells—that is, their relation to the tissue fluids—Dr. CAMPBELL outlines the source of the normal plasma and indicates its complex composition. He points out that it is the product of the united activities of the tissues in general, since every cell can influence its composition not only by the addition of waste materials but by providing it with substances which are essential for the efficient action of other tissues, notably the ferments and the hormones. He quotes the ingenious speculation of Professor STARLING that the latter substances may have been originally waste products, towards which other tissues have evolved a special sensibility. In his summary of the chemical composition of the blood plasma he considers the following groups of substances—foodstuffs and free oxygen, ferments, hormones, antibodies, and excreta, and further suggests the probable variability of that composition, not only in different individuals but in the same person at different times and under different conditions. The plasma in disease is next discussed and the chief ways in which departure from the normal may be induced are enumerated; they comprise defects in its normal constituents, such as its proteids, sugars, and fats, or in its hormones and ferments; accumulation of normal waste products or of the products of faulty metabolism, as in uræmia and diabetic coma and the toxæmia of indigestion; and the absorption or introduction of extraneous poisons, such as alcohol, lead, and those formed by bacterial growth. The influence of plasma on function and nutrition is described and the actions of the various constituents mentioned are separately discussed, while the views of EHRLICH respecting the reactions between the cells and nutritive or toxic agencies are briefly outlined. The effects of the various defects in the plasma upon cellular activity and the comparative susceptibility of various cell types to plasmic influences are considered, the neurons being regarded as most impressionable, the gland cells next, while those of muscle and connective tissue are less easily influenced. To explain the selective actions of various poisons, organic and inorganic, a cellular resistance, both active and passive, is postulated. The disturbances of function resulting from alterations of the plasma come next under discussion, and the influence of the same conditions upon structure is illustrated by reference to the marked alterations produced by toxic agencies, such as alcohol, arsenic, and phosphorus, and by certain tissue extracts, probably of the nature of hormones—e.g., those yielded by the ovaries, testes, and thyroid and adrenal glands. The response of cellular activity to substances such as tobacco and alcohol is dealt with and the phenomena of tolerance are explained as "a structural adaptation to a specific environmental agency"; indeed, a similar

[1] THE LANCET, Feb. 2nd, 9th, and 23rd, March 16th and 23rd, and April 6th, 1907.

explanation is invoked for practically all the changes through which the cells of multicellular organisms pass during the vital cycle of development, maturity, and decay, other than those which are the result of hereditary agencies or which have been produced through the medium of the nervous system. Following this line of reasoning along subdivisions the influence of changes in the plasma upon growth and development, and in similar manner their effects in causing dissolution are detailed—in other words, the degenerations resulting from defective composition or defective circulation of the plasma. The vital activities of each component cell of a complex organism are regarded as of two kinds: first, those that are concerned with its own activity and vitality, referred to as egoistic; and secondly, those concerned with other parts of the organism, referred to as altruistic functions. Failure in this latter type of activities is described as common and as the basis of many functional and even some organic diseases, so that a very large proportion of all diseases are regarded as due to changes in the blood plasma. In his concluding article Dr. CAMPBELL deals with the indications in regard to treatment to be deduced from the study of the plasma and its defects; these he groups under four heads—viz., measures directed to the digestive system, to the excretory system, to the destruction of bacteria or the neutralisation of their products, and to the correction of defects in respect of hormones and enzymes.

Though there is much that is speculative and debateable in these articles, and though they contain not a few theoretical deductions to which we are not prepared to subscribe, yet they show a wide knowledge of the literature of a very important subject and bear the impress of careful and critical thought and study. They should serve a useful purpose in directing the attention of the practitioner to the complex composition of the blood plasma and to the important rôle it plays both in health and disease. The mistake is too often made, both in pathology and in medicine, of concentrating attention on the local effects of disease to the neglect of the general disturbance of which they are but an expression, with the result that treatment is likely to be symptomatic rather than rational. Physiology has definitely established for us a conception of the complex relations of the constituent organs, tissues, and cells in the commonwealth of the organism; this same conception requires to be applied to the study of morbid conditions, and Dr. CAMPBELL'S articles are a thoughtful endeavour in this direction.

The Teaching of Cookery.

THE nine letters which combine to form the word "education" appear, when arranged in their proper order, to exert upon the faculties of the English ratepayer an amount and kind of fascination only to be equalled by that of "the blessed word Mesopotamia" as it appealed to the devotional sense of the old woman famous in story. As long as vast school buildings are erected, as long as a certain section of the community is known to be engaged during stated hours in the business of what is called teaching, and as long as the demands of the rate-collector follow one another in due quarterly course, everything is supposed to be for the best by those who would range themselves, even at no small self-sacrifice, on the side of progress. The observer who takes note of the actual conditions of the children attending elementary schools may, however, be just as true a friend to progress and yet be occasionally inclined to cavil; but what is he when opposed to the prevailing tone of comfortable official optimism? But cavillers will not cease from troubling while occasional rents in the veil of the educational temple give passing visions of the interior which are not reassuring. 50 years, or more, ago one of Her Majesty's inspectors inquired in a report "to what purpose in after life is a boy taught, if the interval of a single school vacation is to be accepted as a sufficient excuse for his having entirely forgotten the instruction he has received?" and the same gentleman further illustrated the value of some of this instruction by a revolutionary and unheard-of proceeding. He called upon two children, aged about 11 years, "who did their arithmetic and reading tolerably well, and who wrote something pretty legible, intelligible, and sensible about an omnibus and about a steamboat, to write down the answers of the Church Catechism to two questions, answers which they had been accustomed to repeat during half an hour of each day, in day-school and Sunday-school, for four or five years." Space forbids us to quote the whole of what they wrote, but this is a single example. "My duty toads GOD is to bleed in him to fering and to loaf withold your arts withold my mine withold my sold and with my sernth to whirchp and to give thinks to put my old trast in him to call upon him to onner his old name and his world and to save him truly all the days of my lifes end." Upon the publication of this contribution to national gaiety it was felt that criticism of our educational methods was not necessarily the work of prejudiced reactionaries, but might have a very just origin. And now, after the lapse of half a century, and after five and thirty years of improved "education," we are to-day furnished with a similar glimpse behind the veil in relation to the teaching of cookery to working-class girls, a matter which is surely of the very highest significance alike to the welfare of their families and to the future of the race.

The Board of Education has issued a special report on this important subject by the Honourable MAUDE LAWRENCE, the Chief Woman Inspector, founded upon the reports made to her by the women inspectors working under her in different districts of England. The report is preceded by a general account of the history of instruction in domestic subjects in elementary schools since 1875, carried down to the issue of new regulations last year, and the chief conclusion to be based upon the narrative is that for the 30 years in question the proceedings described have been of almost inconceivable futility, utterly useless to the children, and the merest waste of time on the part of everybody concerned. In regard to education, indeed, it would be difficult to find any example of greater futility, unless it were the well-known instance of the young lady in the Midlands, who was asked before a bench of magistrates whether she had attended school. "I goed to t'neet school once," she said, "but there wer noa candles and t'missis didna coam." It is to be regretted, we think, that the several women inspectors are not referred to and quoted by name, as responsible officials

should be; but, this not having been done, we can only take the report as it stands. We learn from it that at *blank* school, in *blank*, Miss *blank* reports the following specimens of the teaching of a supposed "trained teacher of domestic science." "The temperature of water for bread-making should be as it tells us in the Bible—'neither hot nor cold.'" "If you have cholera or scarlet fever in the house, put some onions under the bed, and they will sweep away all diseases." In another district "out of 42 centres visited, 17 had gas stoves *only*, and at one of these centres 17 children were being taught to work on a gas stove, not one of whom had a gas stove at home." In a centre in a very large industrial district in Lancashire, where "marmalade was the chosen dish," the work of 17 children for the afternoon "consisted in cutting up four oranges—that is, about a quarter of an orange to each child. As marmalade takes two days to make, the children would not see the result of their work." To sum up, it may be said that the whole business is described as being a dismal and wasteful farce. The "practical" are constantly so far separated from the "demonstration" lessons that the latter are forgotten before the former are reached; time is occupied in making such things as toffee and buns which will sell in the locality, instead of things calculated to feed labouring families economically; the children are made to write long recipes and methods of cooking dishes, many of which they never practise; and the materials for teaching, both in the way of food and of utensils, are shamefully insufficient or unsuitable.

In view of the conditions thus described it cannot be said that the Education Board has acted hastily in the promulgation of the new rules of last year, by the operation of which it is hoped that the methods of teaching cookery will be improved. It is a familiar observation that the ordinary waste of food in an English middle-class family would be sufficient wholly to maintain a French family of similar station; and the waste of food is at least very largely due to the ignorance of cookery which prevails among the classes from which English domestic servants are derived. It is no doubt true that an English servant regards a large consumption of food materials as a circumstance which redounds to the honour of her employers and casts some reflected glory upon herself, a view which tradespeople do not discourage. Making all allowance for these conditions, there is yet a surplus of waste for which only sheer ignorance can be held accountable. In every working-class family things are thrown away which a French housewife would carefully preserve, would put to stew in a pipkin surrounded by hot ashes, and from which she would prepare a nourishing and savoury dish. The consumption of strong drink among English working people has decreased, but its evils are still prevalent enough, as all medical men know. The habit is to a large extent the result of insufficient nourishment sometimes combined with painful indigestion, and the various temperance societies could scarcely employ a better weapon in their work than an endeavour to improve the feeding of the poor. If our elementary schools taught girls to understand the values of food and to cook decently the effect upon the physique, the industrial capacity, and even upon the intelligence of the working classes would be enormous.

The American Medical Association and Proprietary Medicines.

THE Council on Pharmacy and Chemistry of the American Medical Association is making excellent progress in its campaign for the reform of the trade in proprietary medicines. For over two years a body of experts has been systematically collecting information concerning proprietary medicines sold in the United States, with a view to separating those which comply with a certain ethical standard from those which do not. The Association has just issued two publications which indicate the results of this investigation up to the present time. One of these booklets contains monographs on a number of unofficial and proprietary drugs tentatively approved by the Council on Pharmacy and Chemistry. This is to form the basis of a volume to be called "New and Non-Official Remedies." The other booklet contains a number of reports by committees and analysts on proprietary medicines to which recognition in that volume is to be refused. No article advertised to the public is accepted for inclusion in "New and Non-Official Remedies," nor is a recommendation for the treatment of any particular disease permitted on the label or on an accompanying circular. A false statement by the manufacturer as to the origin, source, or therapeutic value of his drug prevents recognition, and the council insists that in the case of every compound the names and proportions of all active medicinal ingredients and of alcohol, together with the identity of any preservative used, shall be honestly disclosed. In the case of chemical substances, structural formulæ are also required. The manufacturer's statements are checked when necessary by analysis in the laboratory. If the trade name of an article be insufficiently descriptive the council reserves the right to include in "New and Non-Official Remedies" a descriptive title as well as the trade name. The council is careful to state that even when all these conditions have been duly complied with, acceptance does not connote a recommendation but merely implies that so far as is known the fixed ethical standard has been reached. The monographs in the booklet thus tentatively approved follow to some extent the model set by Pharmacopœias. As nearly all the remedies included are the subject of proprietary rights, the trade name—whether this be a registered trade-mark or not—forms the title of each monograph, a fact which will greatly benefit firms owning any kind of proprietary interest in the names of remedies. Following this are s[illegible]nyms, then the description of the remedy, its method [illegible] preparation, distinctive characters and tests, actions and uses, and dosage. Finally, the name of the manufacturer and the nature of his rights, whether arising through a patent or a trade-mark, are given.

The second of the two booklets issued by the American Medical Association contains, as has been stated, reports on certain proprietary articles which do not reach the ethical standard laid down by the Council on Pharmacy and Chemistry. Sometimes the report consists merely of quotations from advertising literature, the language of which is itself sufficient to explain to the medical profession why the articles referred to have not been acceptable. In one or two cases letters from irate manufacturers objecting to give away

their trade secrets are printed. Analytical reports show that proprietary brands of "metabolised cod-liver oil" and "cod-liver oil cordial" contain no cod-liver oil at all. A preparation freely advertised both in the United States and in Great Britain as a "laxative salt of lithium" was found to consist almost wholly of sodium citrate and sodium sulphate. A number of proprietary powders and tablets were found to contain so large a proportion of acetanilide as to disentitle them to the recognition of the association. A proprietary "coca wine" emerges unsuccessfully from the ordeal of analysis accompanied by a scrutiny of the advertisements of the wine. The committee believes that this wine is intended primarily to be a beverage, not a medicine. For one reason or another a considerable number of substances have been weighed in the balance and found wanting.

This authoritative separation of proprietary remedies into two distinct classes is a notable step in advance of previous attempts to deal with a growing difficulty and a grave evil. Many proprietary compounds and so-called synthetic drugs are articles which ought not to be prescribed by medical practitioners in any circumstances. The difficulty has been that the medical profession has had no satisfactory means of distinguishing between the worthless and the useful. For it is undoubtedly true that some remedies which are the subject of proprietary rights are valuable and almost necessary additions to the therapeutic agents at the service of physicians. However much we may object to the principle of private monopolies in things which are a public necessity, it would be too much to expect that a manufacturer who spends large sums of money on chemical and clinical research should dedicate to his trade competitors the advantages of the genuine discoveries of his employees. The American Medical Association has recognised this at the onset and has begun its work with conspicuous wisdom. For the future it contemplates the formation of a corps of medical consultants connected with large hospitals and also the establishment of a chemical and pharmaceutical laboratory in the association's premises. Many more substances still have to be investigated, but from the work which has already been accomplished it may fairly be anticipated that the publication of "New and Non-Official Remedies" when completed will serve a most useful purpose. There will then no longer be any excuse for the prescribing by medical practitioners of discreditable proprietary medicines, or for the acceptance by newspaper proprietors of fraudulent advertisements in respect of such nostrums. If medical men, pharmaceutical chemists, and druggists are willing to take active steps to educate public opinion in the matter of quack medicines, educative material in plenty will be supplied by the American Medical Association, whose action will only need their energetic support in order to confer a conspicuous benefit on the body politic.

UNIVERSITY COLLEGE HOSPITAL.—The annual general meeting of the Ladies' Association will be held on Wednesday, May 8th, at University College Hospital, Gower-street, W.C., at 4.30 P.M. The Duchess of Bedford will preside. After the meeting members of the association will have an opportunity of seeing over the hospital.

Annotations.

"Ne quid nimis."

THE PREDOMINANCE OF THE QUACK.

WE have recently heard much about the physical degeneration of our population. Whether we have degenerated physically as a race is a question to which opposite answers are given; it is a matter for investigation, and as yet sufficient facts have not been obtained and grouped to allow any responsible people to make a reply. But we recommend as an argument to be used by the pessimists, who could introduce it with a sentence (which some of us may have seen quoted once or twice) concerning the close relations between the healthy body and the healthy mind, that the increasing credulity shown by the public in the claims of the quack makes out a *prima facie* reason for believing in the physical deterioration of our population. A study of the advertisements relating to nostrums and appliances which regularly appear in newspapers and magazines patronised by all classes of society is a plentiful task; the gross and palpable absurdity of the claims of the charlatan seems directed to catch the attention of such a deeply ignorant public. The methods of the itinerant pill-pusher are now closely followed by advertisers in the most expensive journalistic mediums. If we walk through the market places in the poorer neighbourhoods of our great cities during the workman's dinner hour or on a Saturday night we find, as might be expected, plenty of raucous orators dilating to a large audience on the wonders of the human body, the enormous significance of lime water becoming turbid when the breath is passed through it, the wonderful clearing effect of herbs on the lungs, and the peristaltic properties of pills innocent of mineral defilements, and so on. We can understand that such persons, having attracted their hearers by methods allied to those of *saltimbanques*, should be able to dispose of their wares. The spoken word, when it is an egregiously silly word, may yet remain convincing, but when the rubbish of an "Alexander the oracle-monger" appears in cold print how can the absurdity of the claims made escape detection? We do not know: we cannot guess. Presumably it is the more intellectual classes of the community who read certain of the magazines and newspapers which now teem with quack advertisements. These people look with pity or ridicule upon the working man who listens to the rantings of the street quack, but if there is any difference in mental attitude between the representative audiences we have indicated the balance in the matter of good sense is not on the side of the better-educated class.

THE RETIREMENT OF PROFESSOR POLITZER.

Professor A. Politzer of Vienna has by universal consent been for many years one of the foremost living otologists. He has for 46 years been engaged in lecturing on the various subjects of his specialty, and owing to the operation of the age-limit he will at the end of the approaching summer term have to vacate his chair in the university and his position as head of the Vienna otological clinic. In recognition of his world-wide reputation and his great services to otology and general medicine a committee has been formed to make arrangements for the execution of a plaquette (medal) bearing his likeness. The work of designing the plaquette has been entrusted to Mr. Telcs, a sculptor of acknowledged ability, and a copy of it in gold, together with an address containing all the names of the subscribers, will be presented to Professor Politzer on the occasion of his retirement. Other copies of the plaquette, some in silver and some in bronze, will also be struck for distribution to

the subscribers and to serve as souvenirs of a great otologist. All medical men, and in particular all of Professor Politzer's former students and all otological specialists who desire to honour him, are therefore invited to communicate with the treasurer of the committee as soon as possible and not later than May 15th. The committee is of an international character, being composed of 22 members, of whom 18 represent each a different nation; the British member of this committee is Dr. Urban Pritchard of London. All communications should contain the name, titles, and full address of the sender very plainly written, and should be accompanied by a remittance of 24 kronen (£1) for silver plaquette or 12 kronen (10*s.*) for the bronze plaquette. The treasurer of the committee is Dr. D. Kaufmann, Vienna, VI., Mariahilferstrasse 37.

THE PUNGENCY OF TOBACCO SMOKE.

CONFLICTING statements have been made from time to time as to whether, after all, nicotine is responsible for the toxic symptoms produced by tobacco smoke. There can be little doubt, however, from the number of observations made that if tobacco smoke contains nicotine at all the amount does not represent anything like that present in the tobacco itself. Probably not more than one-seventh of the nicotine present in tobacco survives in the smoke. On the other hand, some eminent observers have failed to trace nicotine in tobacco smoke at all, and hence some other substance is regarded as its toxic constituent. This would appear to be pyroidin, which has an intense action on the nervous system. It is a very large constituent of the oil which collects in the tobacco-pipe and this oil is very poisonous. It would appear, therefore, that the toxicity of tobacco may not have any relation at all to its nicotine contents, and it is well known that some tobaccos containing a very small proportion of nicotine yet yield a smoke which is decidedly toxic. Certain Turkish tobaccos, for example, are almost free from nicotine, while they produce a pungent toxic smoke. It would be pretty safe to assert that all smoke is more or less toxic. If wooden shavings were substituted for tobacco in the pipe there can be little doubt that the smoke would have evil effects, but there is no nicotine in wood. The fact is, that the toxicity and pungency (though the terms are not necessarily interchangeable) of tobacco smoke are dependent upon chiefly the nature of the products of destructive distillation of the plant fibre. The pungency of tobacco smoke seems, at any rate, to bear some relation to the proportion of organic acids present in the leaf. The amount of these acids, amongst which citric and malic acid are chief, varies widely, and as a rule that tobacco gives the softest and least irritating smoke which contains the smallest amount of organic acid. The citrates and malates on destructive distillation give acrid products. Of two cigarettes the tobacco of which contains approximately the same amount of nicotine, one may be found to give an unirritating and the other an acrid smoke. When the two tobaccos so concerned are further examined it may be found that one generally yields a larger ash than the other, corresponding with a larger proportion of organic acid. The tobacco with a larger proportion of organic acid is more liable to give an irritating smoke. The variations in organic acid constituents may range from 1 up to 4 per cent. Cigarette smokers differ in their views as to whether the American cigarette is more toxic or pungent than the Turkish variety, although in Western countries it would appear that the man who is hardly ever seen without a cigarette in his mouth generally chooses American tobacco to satisfy his habit. In that case it is probable that though there is very little nicotine in Turkish tobacco (or Egyptian, which is the same thing) compared with American or Virginian tobacco, yet the latter contains a minimum amount of those acid constituents which are largely responsible for yielding acrid products in the smoke. Possibly also the variations in the amount of oil determine a difference.

METEOROLOGICAL RECORDS DECEMBER, 1906, TO MARCH, 1907.

—	Temperature.					Rainfall.		Sunshine.	
	Mean maximum.	Mean minimum.	Mean temperature.	Difference from average.	Mean diurnal range.	Total fall.	Difference from average.	Number of hours.	Difference from average.
	°	°	°	°	°	Ins.	Ins.		
Douglas, I.M.	46	36	41·0	−0·3	10	13·7	0·0	376	+134
Blackpool ...	44	35	39·4	−0·9	9	8·3	−1·9	381	+ 75
Llandudno ...	47	38	42·4	+0·1	9	7·4	−2·2	381	+114
Pembroke ...	47	39	42·8	−0·4	8	9·0	−3·5	359	+ 56
Falmouth ...	46	40	42·9	−1·2	6	10·6	−6·9	384	+ 53
Scilly	49	43	45·8	+0·2	6	6·8	−5·7	391	+ 48
Jersey	48	39	43·3	−0·4	9	7·7	−4·1	433	+ 64
Torquay	48	38	42·9	−0·6	10	5·5	−7·4	453	+11
Sandown, I.W.	47	36	41·4	*	11	5·5	*	465	*
Bournemouth	47	?	?	?	?	4·4	*	460	*
Hastings... ...	45	35	39·5	−1·2	10	5·3	−4·1	476	+14
Folkestone ...	44	33	38·5	−1·3	11	4·3	−4·7	435	*
Margate... ...	45	34	39·4	−1·0	11	4·5	−2·3	406	+120
Lowestoft ...	43	33	38·3	−1·2	10	7·1	+0·7	449	*
Scarborough...	46	35	40·4	+0·9	11	6·4	−1·4	409	*
Aberdeen ...	44	33	38·8	+0·3	11	7·9	−2·6	381	+104
Glasgow... ...	44	35	39·7	+0·5	9	12·2	−0·8	223	+ 21
Prestwich ...	45	35	39·6	+0·6	10	12·5	+1·3	264	+104
Birmingham...	45	34	39·2	0·0	11	5·1	−2·7	251	*
Nottingham ...	45	32	38·7	−0·4	13	6·0	−1·1	292	*
Harrogate ...	44	33	38·5	+0·4	11	8·0	−0·8	410	*
Bath...	47	33	39·8	−1·2	14	5·0	−5·7	451	*
Tunbridge Wells	44	33	38·6	−0·5	11	6·7	−2·8	435	+156
London	46	35	40·2	−0·4	11	4·4	−2·6	257	+122
Dublin	48	38	42·9	+0·4	10	5·5	−2·9	338	+ 34

* No trustworthy average

The above table shows the state of the chief meteoro'ogical elements for the four months—December, 1906, to March, 1907—at certain selected places within these islands. Compared with the corresponding statistics published in THE LANCET a year ago the mean temperature is lower by about one or two degrees at every station except Scilly, where the figure is identical. The total rainfall is also considerably lower, while at nearly all the stations the number of hours of sunshine is higher. It will be observed that the mean temperature did not differ materially from the average but that in most cases it was slightly below it. Had not March, however, been everywhere a mild month the deficit would have been rather marked. Except at Aberdeen and Scarborough the coldest month was February, and in nearly all places January was colder than December. The mean diurnal range of temperature was greater than during last year, and, following the general rule, it was less in the west and south-west than in other parts of the kingdom; the places with the greatest diurnal range were Nottingham and Bath, while at Birmingham and in London (Westminster) the mean difference of warmth between the day and night (11°) was no greater than at some of the coast stations in the south and east. The mean warmth at Harrogate, Tunbridge Wells, Folkestone, and Aberdeen was almost identical, while that at Hastings was very similar to Blackpool, and the figures for London very close to those for Scarborough. Another curious agreement existed in the mean temperature at

Torquay and Dublin, the mean maximum, the mean minimum, and the mean for the whole period being absolutely the same. In almost all places the rainfall was much less than the average. The most striking deficit was at Torquay and Falmouth, but the driest localities were Margate, London, Bournemouth, and Folkestone. Sunshine, which in some respects is possibly more valuable in winter than in summer, was in excess of the average, the number of hours recorded far exceeding the corresponding figures of last year. The chief contributor to the abnormal excess was March, but with a few local exceptions the other months were also bright. At the head of the list are Hastings, Sandown, and Bournemouth, followed closely by Torquay and Bath, while the least sunny of the places given in the table are Glasgow, Birmingham, and London (Westminster). On the east coast the chief honours were gained by Lowestoft, while in the north-west the most sunny spots were Blackpool and Llandudno, each recording 381 hours. In London the mean daily duration was a trifle more than two hours, while over the south-western, southern, and south-eastern counties generally it was only a little less than four hours.

THE PHARMACOLOGY OF ETHYL CHLORIDE.

Dr. E. H. Embley, honorary anæsthetist to the Melbourne Hospital, has contributed to the Royal Society the results of an experimental study of the pharmacology of ethyl chloride[1] with the view of saving what appears to him to be a valuable anæsthetic agent from coming under the suspicion of being unduly dangerous. These results arrive at an opportune moment, when the merits of ethyl chloride are so much under discussion.[2] For comparison with the effects of chloroform Dr. Embley used dogs in his experiments and employed morphine and ether as the preliminary anæsthetics. The solubility of ethyl chloride vapour in water at normal pressure and 21° C. was found to be 253·36 per cent. by volume (0·678 per cent. by weight); its solubility in blood was found to be approximately 500 per cent. by volume of the vapour at 38° C. Dr. Embley next determined the effect of ethyl chloride upon the heart isolated from the central nervous system by a special method of ligation of the arteries by means of which a circuit was maintained without the introduction of cannulæ. It was found that the heart muscle is paralysed by ethyl chloride, as by chloroform and in contrast with ether, but the quantity of ethyl chloride vapour in the air required is 19 times as great as that of chloroform to produce similar results. The effect of ethyl chloride upon the vascular system was then investigated. The net result is dilatation, but the degree of paralysis is strikingly less than that produced by chloroform, even when the latter is present in less than one-tenth the quantity in the air inspired. From a study of the effect of ethyl chloride upon the vagus mechanism Dr. Embley concludes that vagus inhibition of the heart occurs very readily when ethyl chloride vapour of a strength of 10 per cent. and upwards in the air inspired is administered. A sudden fall of blood pressure occurring when the air inspired contains from 10 to 20 per cent. of ethyl chloride is due to vagus inhibition of the heart. When the strength is increased to 30 per cent. and upwards the fall of pressure is due also to weakening of the cardiac and arterial musculature. Dr. Embley is of opinion that cardiac inhibition is not so serious from ethyl chloride as it is from chloroform, since it comes on before the spontaneous excitability of the heart has been much depressed. It does not seem possible permanently to arrest a dog's sound heart under ethyl chloride narcosis by vagus inhibition. It requires 19 times more ethyl chloride to produce a given degree of cardiac depression than is required of chloroform, whilst it requires only four times as much to produce cardiac arrest by vagal stimulation, hence inhibition sets in relatively rapidly. Dr. Embley considers that these facts explain the relative safety of ethyl chloride. It was also observed that the cardiac inhibition is not a reflex but arises from central stimulation. There was no evidence of any paralysis of vagus endings such as was described by Cole.[3] Dr. Embley further shows that in ethyl chloride narcosis the integrity of the respiratory mechanism is dependent upon the maintenance of blood pressure, as in the case of chloroform. Paralysis of respiration may be preceded by shallow respiratory movements, but it is usually preceded by deep and delayed breaths and in some cases the prolonged pause prevents the fall of blood pressure. In all the experiments the respiration failed before the heart. A strength of from 5 to 7 per cent. of ethyl chloride vapour in the air respired appears to be the limit of safety from danger of syncope in dogs for prolonged and continuous administration. If this concentration be exceeded it is inadvisable to continue the administration beyond abolition of the corneal reflex, as otherwise syncope is very probable. Dr. Embley considers that these conclusions with regard to the effects of ethyl chloride upon dogs apply to man. He has observed the occurrence of syncope in man in two cases, in each of which recovery took place suddenly. From analogy with experimental results he regards such syncope as due to vagus inhibition, except in cases of failing heart and other morbid states. A sound heart is able to free itself from vagus inhibition, but the degree of depression caused by ethyl chloride may be sufficient during the period of syncope to embarrass an unsound heart beyond recovery. As regards the administration of ethyl chloride, Dr. Embley advises the employment of a gasometer containing the mixture of air and ethyl chloride vapour. He considers that less safety is assured by the use of any apparatus by which the anæsthetic is sprayed or poured into the instrument between the face-piece and the bag, whereby during inspiration excessively high degrees of concentration of ethyl chloride may be given. It is better, he asserts, to mix the anæsthetic with the air at the end of the bag.

[1] Proceedings of the Royal Society, Biological Series, Dec. 4th, 1906, pp. 391-413.

[2] Compare THE LANCET, July 14th, 1906, p. 106.

[3] Brit. Med. Jour., 1903, vol. i., p. 1421.

PRISON FARE.

ATTENTION has been called recently to the diet officially sanctioned for persons undergoing terms of imprisonment by accounts, possibly exaggerated, in the newspapers of discontent, bordering upon mutiny, at Wormwood Scrubs; and these accounts have been supplemented by letters purporting to have been written by men who have undergone terms of incarceration there. It has also been stated that there is considerable discontent among the prison warders, whose duties we may well believe cannot be pleasant ones, even when the administration of prison discipline progresses without unusual friction. The complaints made with regard to the diet are directed against the quantities allowed. These, it is stated, amount to actual starvation—that is to say, they are scanty enough to lead to physical deterioration in many of those who are compelled to subsist upon them. Now, whatever the objects to be obtained by imprisoning a criminal should be held to be, as to which penologists may differ, they cannot justify returning him to the world in a worse condition, either moral or physical, than he was in when sentenced, and it would be desirable that in both respects he should be improved, because otherwise his chance of a reformed life would be diminished. Weakened by a long period of insufficient food he is obviously less likely to attempt

the hard struggle to find honest employment and the laborious kinds of work likely to be open to him than he would be if feeling fit and well, and the worse his bodily health the more likely he would be to drift back into the easier life of crime which it is desirable that he should abandon. Besides which starvation is a form of torture which savours of the Middle Ages, and torture, even in a mild form, is not supposed to enter into our penal system. That our judges regard imprisonment as distinct from penal servitude as a severe form of punishment is shown in a striking manner by the rarity of sentences of so many as 18 months' hard labour, and by the fact that two years is a term hardly ever given. Indeed it seems to be generally considered a more severe punishment than three years' penal servitude. A minor re-arrangement has taken place recently, but it is possible that considerable revision of our punishments for crime may before long be deemed necessary. There are many who are not satisfied with their efficacy from various points of view, and there should be abundant materials available for the consideration of any who might be appointed to deal with the matter thoroughly.

IRRIGATION AND DRAINAGE OF THE SEMINAL VESICLE THROUGH THE VAS DEFERENS.

IN the *St. Louis Medical Review* of Feb. 2nd Professor William Belfield of Chicago has described a novel operation—drainage of the seminal vesicle through the vas deferens. The vas deferens can easily be brought against the skin of the scrotum and held there by a curved needle passed under it. Under local anæsthesia a half-inch incision is made painlessly through the skin and coverings of the vas deferens. On exposing the latter its canal is opened by a transverse or longitudinal incision. The blunted needle of a hypodermic syringe may be passed into the canal and a solution injected. The liquid traverses the vas and ampulla and distends the seminal vesicle. If necessary the vas may be stitched to the skin with fine silkworm gut which passes through its lumen at each cut surface. Thus a fistula may be maintained as long as is desired and through it the seminal vesicle may be injected. Moreover, the vas serves as a drainage-tube for the ampulla. The drainage may be facilitated by passing a fine silkworm or horsehair thread along the vas to the ampulla. By Professor Belfield's operation direct medication of the vas, ampulla, and seminal vesicle is made possible. Professor Belfield often performs the operation in his consulting room and finds that the patient is able to walk away and resume his vocation. He recommends irrigation and drainage of the seminal duct and vesicle as invaluable in the following conditions: (1) chronic gonorrhœal infection of the seminal vesicle, with or without gleet; (2) chronic suppuration of the seminal canal in the middle-aged and elderly (usually mistaken for enlarged prostate); (3) recurrent epididymitis which results from repeated invasion of the epididymis by an infection persistent in the seminal vesicle and deep urethra; and (4) acute inflammation of the seminal vesicle from gonorrhœa and other infections. Sometimes incision of the vesicle from the rectum with the galvano-cautery is desirable for the immediate relief of symptoms. Liquids injected into the vas then escape by the rectum. The first injection into the seminal vesicle should not exceed 30 minims. A larger amount may cause painful contractions of the vesicle (spermatic colic) and retention of urine. In his earlier work Professor Belfield observed both these results. As the inflammation subsides the injections may be carefully increased in quantity. If complete division of the vas is thought desirable end-to-end anastomosis may subsequently be performed after freshening the cut surfaces in old cases by running fine catgut or silkworm gut through the lumen of each end. The infections of the seminal vesicle and vas deferens constitute a neglected field. The symptoms of suppuration of the vesicle (spermato-cystitis)—frequent and painful micturition and retention of urine—are generally referred to the bladder and prostate and treated as cystitis and prostatitis. Enlarged prostate sometimes is diagnosed and prostatectomy is recommended. Professor Belfield thinks that the cases which were temporarily benefited by resection of the vas deferens, when that operation was popular, were examples of spermato-cystitis. By his method these affections are rendered amenable to treatment without danger to the patient or to his sexual function. The suppurating seminal vesicle has been exposed and drained through an extensive perineal incision. But this operation is severe and bloody, entails risks, and necessitates weeks of confinement.

ADVERTISING BY UNQUALIFIED DENTISTS.

WE publish a letter this week from a correspondent in which he refers to the hardships that the qualified dentist has to suffer owing to the activity of the unqualified advertising dentist (see p. 1115). The position is one which has our sympathy, but is also one for which, owing to the chaotic condition of the law, we can see no remedy. In the course of his letter our correspondent states that he knows of men who after having received some portion of their hospital training have not continued to the end of their course because qualification would prevent them from advertising and so leave them at a disadvantage in competing with those who laud in public journals their abilities and wares. He might point out with some force that the public often go to the advertising man believing him to be the better qualified, this act of the public being due to the fact that they are unable to distinguish between the qualified and the unqualified man. These and many other points are often brought to our notice by correspondents, but we believe that the State will do but little to alter what is certainly an unsatisfactory condition of the law so long as such alteration is only clamoured for by the medical man, the natural assumption being that such alteration is in reality required to benefit the profession and not the public. If, however, an alteration of the law is demanded by the public, then that alteration will come speedily. To this end a combined effort might be made by those in authority in the dental world to educate the public on the importance of the teeth and the way to discriminate between the qualified and the unqualified.

A COMPARISON OF THE THERAPEUTIC ACTION OF THE VARIOUS COMMERCIAL SALTS OF QUININE.

QUININE and its salts contain different proportions of the alkaloid owing partly to the presence of water of crystallisation and partly to differences in the relative weights of the acids combined with the alkaloid. The percentages of alkaloid in quinine and its more important salts are as follows: quinine, 85·7; quinine sulphate, 74·1; quinine bisulphate (acid sulphate), 58·8; quinine hydrochloride, 81·5; quinine bi-hydrochloride (acid hydrochloride), 81·6; quinine hydrobromide, 76·4; and quinine salicylate, 68·5. They differ widely therefore in alkaloidal content, the sulphates being the weakest. But the ordinary sulphate was the first salt of quinine to be used widely and it remains to-day the most popular salt owing probably to the fact that the superiority of other salts of quinine is not generally understood. This is shown by Dr. B. Howard, in a note on the prophylaxis of malaria in the *Chemist and Druggist* of March 23rd. The bisulphate of quinine was introduced on account of its greater solubility as compared with the ordinary sulphate. But it carries a large quantity of sulphuric acid into the

stomach and so causes indigestion. The hydrobromide and hydrochloride are recommended by Dr. Howard on account of their ready solubility and high alkaloidal content, as well as owing to the fact that they are less liable than the sulphates to disturb the digestion. Dr. Howard considers the bi-hydrochloride to be the best salt of quinine for internal administration. It contains a large percentage of quinine and it is soluble in its own weight of water, so that even in tablet form this salt would not be likely to pass undissolved through the system. The bitter taste of the bi-hydrochloride is its only drawback and this it shares with the other more soluble salts of quinine.

THE CHEAP REVOLVER.

IN the House of Commons Mr. G. H. Faber recently asked the Home Secretary whether he proposed to take any measures "to restrict the sale of revolvers to such applicants only as should have obtained a magistrate's certificate as to the necessity of the purchase." We regret to say that an unsympathetic answer was returned, Mr. Gladstone expressing himself satisfied with the results achieved by the Pistols Act, 1903. He also was of the opinion that no possible amendment of the law would prevent the class of murders which Mr. Faber had described as "planned and deliberate," with special reference to the assassination of Mr. Whiteley. In an annotation in THE LANCET of March 9th, and with reference to the same crime, we suggested that it should be made an offence to carry a pistol without good cause and that "the certificate of a magistrate as to his need for it" should be produced by anyone who purchased such a weapon. We are in agreement with the suggestion made by Mr. Faber, and we are not inclined to accept Mr. Gladstone's summary judgment with regard to its possible utility. In the individual instance mentioned it has been said that the revolver used was originally stolen, and quite possibly for this reason the necessity for a magistrate's certificate would not have affected Rayner. Any restrictions, however, which diminished the promiscuous sale of revolvers to irresponsible persons would materially lessen the number available for circulation among the class of persons prone to commit crimes, and if the man found carrying a revolver could be punished for so doing, a check not now existing would be imposed upon a dangerous practice. We are not concerned with the particular method by which Rayner obtained his weapon, and we believe him to have been impecunious. Under the existing law, however, a sovereign or a little more would have supplied him with a fairly serviceable pistol and with ammunition, as well as with the licence to carry them about on his person to the danger of his fellow citizens, and it is against this fatal facility enjoyed by those who commit crimes, whether "planned and deliberate" or not, that we protest.

THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.

IN other columns we publish two papers to which the attention of our readers may be especially drawn as they supplement each other in an interesting way. One is by Dr. John Hay on the Early Diagnosis of Consumption and the other by Dr. N. D. Bardswell on the After-history of Tuberculous Patients treated in a Sanatorium. It is now generally recognised that the successful treatment of pulmonary tuberculosis depends upon an early diagnosis. Dr. Hay gives some eminently practical suggestions as to the manner in which the physical examination of the chest should be carried out, and the importance of making such examinations quite methodically excuses the fact that his instruction frequently is of an elementary character. He rightly lays stress on the modification of the physical signs which may occur in the healthy chest, for unless these be remembered and localised errors in diagnosis may easily arise. Dr. Hay, it will be remarked, only refers to the examination of patients as conducted in the consulting or out-patient rooms, but it is precisely under those conditions that the early cases are usually seen, therefore his remarks are all the more useful. Dr. Bardswell's statistics as to the after-history of patients treated in a sanatorium are instructive and encouraging. He makes no comment on the particular form of sanatorium which, in his opinion, is desirable, but the outcome of his remarks is that the best results in sanatorium treatment are obtained in the early cases, those cases for whose detection Dr. Hay sets out rules. Dr. Bardswell gives two tables of figures, the first showing the immediate results of sanatorium treatment of 277 unselected cases, and the second the permanent value of the treatment, indicating the results of 277 cases treated during six years from 1899 onwards. It is the latter table which is of chief interest. Temporary improvement is of frequent occurrence under many forms of treatment, which result enables quacks to reap a plentiful harvest. It is, however, the subsequent fate of the patients, say ten years afterwards, that really tests the true value of any therapeutic measures. Dr. Bardswell does not carry us as far as that, but nevertheless his figures are encouraging. There is one point, however, to which attention must be drawn and that is, with the exception of 40, all the 277 patients belonged to the leisured classes. Such individuals have a far better chance of continuing "sanatorium methods" after leaving the institution than have patients belonging to the "working" classes. Before any definite pronouncement can be given on the whole question of sanatorium treatment some years must yet elapse in order to follow out the subsequent progress of those patients who have to return to arduous and unhealthy occupations. There are many physicians who hold that considerable disappointment may be experienced in the result of sanatorium treatment for the labouring classes.

UNSOUND FOOD RETURNED FROM SOUTH AFRICA.

IN an annotation in THE LANCET of Jan. 5th we referred to the return into this country of a large consignment of tins of beef essence which had been sent out to South Africa during the war and which on examination proved to be in an unsatisfactory condition, the contents of the tins being turbid and dirty and contaminated with metallic tin to the extent of about two grains per pound of essence. This matter had also come to the notice of Dr. W. Collingridge, the medical officer of health of the City, and was referred to by him in a report dated Dec 31st, 1906. The consignment in this case consisted of tinned soups and was lying at a wharf within the jurisdiction of the Stepney Borough Council. An analysis was subsequently made, while in the meantime a "stop" was placed on the consignment. The analysis proved unsatisfactory, as much as 2·5 grains per pound of tin being present in some of the samples analysed. In consequence of this result the whole of the consignment was voluntarily placed in the hands of the Stepney authorities who dealt with it as "trade refuse." On March 19th attention was called to the announcement of a sale on March 21st of a large parcel of tinned goods (some of which were returned South African stores) by an auction company in the city. The goods proved to be a further part of the consignment previously dealt with and they were in the hands of the same owner, some of them being unfit for food. The auctioneers were warned as to the nature and condition of the goods and the risks they would incur if they sold them with this knowledge. They suggested that if due notice were given to the buyers the sale might proceed without

danger either to the public or themselves. Accordingly a warning notice was posted, the seller also stating that in the event of the goods proving on examination to be unsound the money paid for the same would be refunded. Eventually only a very small part of the goods was sold. Meantime a large quantity of these goods are still in this country and no doubt from time to time such will be put on the market. As Dr. Collingridge points out, the responsibility of the authorities by whom such goods were originally sold is great. There is not only the danger to public health to be considered, but also the injury to the trade by the sale at a ridiculous price of rotten goods still bearing the labels and marks of makers of repute. This matter has been brought to the attention of the Government and it is to be hoped that no effort will be spared to control or stop altogether this unfair and dangerous dealing.

THE TREATMENT OF TUBERCULOSIS AND LEPROSY.

MEDICAL historians of the future can hardly fail to remark that ready and extensive employment of remedies prepared in the bacteriological laboratory for the treatment of various bacterial infections which marks the opening years of the twentieth century. The search for, and trial of, new remedies of this particular type must, no doubt, be regarded as an attempt on the part of those engaged in the active treatment of disease to assimilate and to apply the modern interpretations of pathological processes that emerge from day to day from the laboratories of research workers, and are amply justified, to cite but one instance, by the results obtained in surgical tuberculosis by the intelligent administration of tuberculin. Lesions, however, that are due to the bacillus lepræ, like certain of those due to the closely allied bacillus tuberculosis, remain untouched by such remedies as are already in our hands. A communication published in our columns entitled "The Successful Treatment of Tuberculosis and Leprosy by means of an Albuminoid Metabolic Product, Chemically Altered," will therefore be read with interest but also with a critical eye. The author introduces the remedial agent by explaining that he first observed the bacillus from which it is prepared at Boshof in 1898 during the investigation of a herb suspected to contain alkaloids, encountering it again while studying the fermentation of common wheat meal and bran. The organism in question is a saprophytic aerobe readily forming spores which resemble those of members of the "hay bacillus group" and equally resistant to the lethal effects of heat; it stains well with ordinary dyes (its reaction to Gram is not mentioned), it liquefies gelatine, forms a wrinkled tough pellicle on solid media varying in colour from white to pink or red, and altogether has many characters in common with the bacillus mesentericus ruber although Dr. Wernich appears to regard it as bacillus subtilis. The range of temperature selected by the saprophyte—from 104° to 132° F. (40° to 55·5° C.), with an optimum of 126° to 128° F. (about 52° C. to 53° C.), would, however, place it in the thermophilic class, although it is stated to be capable of development at the room temperature, but in the absence of data derived from the study of the biological characters of the bacillus in standard culture it is useless to pursue the subject of identification. The theory of immunity which led Dr. Wernich to elaborate this form of bacterial protoplasm as his curative agent has little to recommend it on the score of originality or modernity. Briefly stated, he considers that a portion of the toxin produced by an infecting bacterium is, whilst circulating in the blood, converted into antitoxin by a process of oxidation, which antitoxin is at once available for the needs of the body. Similarly by precipitating the albuminous matter present in specially prepared cultures of the Boshof bacillus in the form of a tannate he considers that he has imitated sufficiently closely the methods of nature to provide an antitoxin, which, totally disregarding the conception of specificity of toxin and antitoxin, will be of value in the treatment of lesions due to the highly parasitic bacteria of leprosy and tubercle, when subsequently dried, pulverised, suspended in water, and administered by the mouth. It is somewhat difficult to follow the *rationale* of the culture processes recommended by Dr. Wernich (which, we are informed, have been selected from some 7000 pages of notes) owing to the lack of detail, possibly due to unfamiliarity with orthodox bacteriological technique. Of the several alternative methods placed before us the writer appears to give the preference to a secondary fermentation of a saccharified soured bran mash in which the Boshof bacillus develops side by side with a lactic acid bacterium that develops spontaneously in his mash when incubated at 126° F. for from 14 to 24 hours. This lactic acid germ grows well and furnishes the necessary albuminoid pabulum which the bacillus converts into the remedy. The mash is then diluted with an equal quantity of cold water and secondary fermentation permitted for about six hours. At the end of that time tannic acid is added in excess and the precipitate which must be of a peculiar "pink-blue" colour is collected, dried, and pulverised. Dr. Wernich apparently encountered many difficulties in the preparation of albuminoid material which he considered therapeutically active, for in one place he remarks, "it follows that at times my patients for weeks at a stretch swallowed stuff that was totally inert." This is no doubt perfectly accurate. Cases of leprosy were placed at the disposal of Dr. Wernich by the Free State Government in 1898 and the account of the progress of the first case under treatment is little short of marvellous. Cases 2, 4, and 5 were improved and Case 3 slightly so. Lupus non-exedens is stated to be readily amenable to treatment, so also is active or quiescent tuberculosis of the lungs. About one hundred cases are said to have been treated and we are led to infer were either cured or much improved, but exact statistics are lacking. A study of this communication must leave behind an impression of inexactitude and inaccuracy in both experimental work and clinical observation, but we have thought it right to afford publicity to the article, as the details of technique and treatment are sufficiently full to permit of our readers independently testing their accuracy.

FLIES AND DISEASE.

THE fly, and especially musca domestica (the common house-fly), will be much persecuted during the present year if the indications reported by our correspondents at Liverpool and Glasgow are to be considered as prophetic of action. In the former city a report is being prepared by Professor Ronald Ross and Mr. R. Newstead as to the history of house-flies during the winter months with a view apparently of destroying them in the egg or in the larval stage, while at Glasgow (Govan) the council's bacteriologist has been making experiments by allowing flies to infect Petri dishes of agar-agar. The organisms which the flies brought were found to be those which are associated with sewage and decomposing organic material. There can be little doubt that infection of food stuffs by flies is one cause of summer diarrhœa, although, as Dr. E. W. Hope of Liverpool pointed out, it is not the only cause. Many other of the diptera besides the musca domestica are noxious, such as the stomoxys, which can inflict a painfu "bite." Instances are on record where this fly, or one o its congeners, has been the carrier of the infection of malig nant pustule with fatal results, especially when the sufferer has been bitten on the lip, and some of our readers may

remember the use made of this fact by Murger in his romance, "Le Sabot Rouge." One of the most active enemies of the fly is the common wasp and the wholesale destruction of these insects which is carried out in some places is likely to result in a plague of flies. Still, even in towns, where wasps are scarce, much may be done to keep down the number of flies by careful attention to the removal of organic matter in ashpits and other places, a course recommended by the health committee of Liverpool. As a matter of fact, in the ordinary household there should never be any organic matter in the ashpit, and as a rule all household organic waste can be burned in the kitchen fire.

HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY.

HYPERTROPHIC pulmonary osteo-arthropathy is a deformity of the bones, joints, and soft parts of the limbs which occurs in some diseases of the lungs. It was first described in 1890 by Marie, who attempted to denote by the name both the nature and the etiology of the disease. But it was subsequently found that the condition occasionally occurred in association with disease other than pulmonary—e.g., hepatic cirrhosis. Some recent writers have therefore adopted the name secondary hypertrophic osteo-arthropathy. To the last volume of St. Bartholomew's Hospital Reports Dr. J. Finlay Alexander has contributed an important paper on the condition in which he exhaustively reviews the literature and reports five cases, which bring the total number of recorded cases up to 103. Eleven of these Dr. Alexander dismisses as merely instances of clubbing of the fingers—a separation to which we object as purely arbitrary. Clubbing of the fingers is present in pulmonary osteo-arthropathy and differs in no way, etiologically or pathologically, from the condition when present alone. All the evidence goes to show that pulmonary osteo-arthropathy is but an extreme effect of the process which gives rise to clubbing of the fingers. Long ago Mr. Jonathan Hutchinson showed that rare diseases are but exaggerated forms of common maladies. But the clinical vice of arbitrarily separating rare forms of disease from their more common allies is widely prevalent, even among the best writers. As a result, narrow conceptions of disease are engendered and energy is wasted on purely pedantic discussions. Of the remaining cases 11 were associated with hypertrophic biliary cirrhosis or other disease of the liver. There remain 81 cases of typical pulmonary osteo-arthropathy. Among these predominate diseases in which pus is formed or in which tissues break down with retention of secretion—bronchiectasis (25 cases), chronic pulmonary tuberculosis (15 cases), empyema (eight cases), and malignant disease of the lung (eight cases). Diseases rarely associated with osteo-arthropathy are chronic bronchitis, pneumonia, pleurisy, spinal caries, amyloid disease, influenza, and chronic heart disease. The introduction of skiagraphy has enabled a more accurate description to be given of the changes present in pulmonary osteo-arthropathy than was previously possible. There is a symmetrical deposit of subperiosteal bone on the shafts of the long bones. This begins as a thin sheath about four or five inches above the wrists and covers the lower ends of the radius and ulna as far as the epiphyseal line, where it is thickest. The carpal bones are not affected. The metacarpals and the first and second phalanges, in less degree, are thickened. The terminal phalanges are not affected. In rare cases the upper ends of the radius and ulna and the lower end of the humerus are affected. In the lower extremities the lower ends of the tibia and fibula are most affected and the layer of new bone may be nearly a quarter of an inch thick. Sometimes the lower end of the femur and upper ends of the tibia and fibula are affected. The bones of the foot are affected like those of the hand. Deposits on the clavicles, ribs, and iliac crests have also been observed. Effusion occurs into certain joints, especially the wrists, ankles, knees, and joints of the fingers. The fingers and toes are always clubbed. This is due to hyperplasia of the soft parts, fatty and fibrous, and not to enlargement of the bones, as was supposed. In many cases the connective tissue covering the affected bones is thickened from hyperplasia. These bony changes appear to be due to irritation of the periosteum by toxins absorbed into the blood. Some obstruction to the circulation which produces its greatest effect on the distant capillaries of the limbs appears also to play a part. The influence of septic absorption is shown by a remarkable case of bronchiectasis reported by Dr. Alexander. When the bronchiectasis was acute (the amount of sputum secreted weekly amounting to from five to nine pints) and septic absorption was considerable, the osteo-arthropathy was at its height. When the bronchiectasis improved the osteo-arthropathy diminished, and when the secretion had almost disappeared joints, soft parts, and bones again appeared normal. The bones had been covered with a loose, irregular layer of new bone. This became consolidated and so closely applied to the shafts that it could be distinguished only in skiagrams.

EPIDEMIC CEREBRO-SPINAL FEVER.

DURING the last few days epidemic cerebro-spinal fever has declared itself in several fresh centres and has reappeared in places from which it had for some time been absent. A rapidly fatal case has occurred at Rishton, on the borders of Blackburn. Other cases are reported from Nuneaton in Warwickshire, from Lemington and from Gateshead in Northumberland, and from Leicester. In Scotland during the week ended April 13th there were 30 deaths from the disease registered in Glasgow, eight in Edinburgh, three in Leith, two in Dundee, and one in Greenock. The weekly return of the Glasgow sanitary department issued on April 12th showed that there were at that time 100 cases under treatment. Other cases have occurred at Falkirk, at Coupar Angus, at Forfar, at Muirkirk, at Coatbridge, at Alyth, at Dunfermline, and at Laurencekirk. In Belfast during the week ended April 6th there were 27 cases notified and 42 patients remained under treatment; in this city there have now been 283 cases with 177 deaths. A nurse at the union hospital in Belfast has succumbed to the disease and a police constable has died after a very short illness.

A COMPENDIUM OF MEDICINES.

AN interesting announcement was made at the meeting of the Pharmaceutical Society held in Bloomsbury-square on Tuesday evening last when Mr. John Humphrey described the scope of a publication, to be known as the British Pharmaceutical Codex, which is shortly to be issued by the society. The intention of the Pharmaceutical Society is to provide a uniform standard and guide for those engaged in the preparation of medicines throughout the British Empire, and the explanation by Mr. Humphrey of the work done in this direction shows that no pains have been spared. The idea that the Pharmaceutical Society should publish such a guide, by which, among other things, authoritative standards for articles and preparations which have ceased to be official might be maintained, was due largely to Mr. Michael Carteighe, who seems to have had the idea present to him for many years. The general arrangements of the work was planned by him, but a strong subcommittee of the society has attended to all the details. The plan of the work was described by Mr. Humphrey as:—

resembling generally that of most pharmacopœias and dispensatories. Monographs on drugs of vegetable and animal origin, and others dealing with chemical substances used in medicine, together with formulæ for galenical preparations and solutions, are arranged

in strict alphabetical order, under Latinised names, with English equivalents, and synonyms where such exist. In the case of crude drugs, each monograph begins with a brief statement as to the botanical or zoological, geographical and commercial sources of the drug, the natural order or family to which the plant or animal belongs, and the modes of collecting o preparing the drug for the market. Then follows a detailed description of the drug, including when necessary its distinctive histological features, together with particulars of its important chemical constituents. The pharmacological action of the drug is next described, its uses are mentioned, and notes given respecting the best methods of prescribing and dispensing the remedy. No attempt is made to deal with the subject of therapeutics, and the notes on prescribing are simply such as will enable medical practitioners to construct their prescriptions in a scientific and practical manner.

By the courtesy of the editor of the *Pharmaceutical Journal* we have been allowed to see specimen pages of the new publication, and there can be no doubt that in many directions the book will be an extremely valuable one. Mr. Humphrey concluded by explaining that the work would "supplement and help to improve and popularise the British Pharmacopœia." How far this is an accurate forecast must remain a matter of doubt for the present, and we can imagine the General Medical Council holding a different view.

THE FIRE AT McGILL UNIVERSITY.

TWO fires have occurred at McGill University, Montreal, during the month, and the later one, which broke out on Tuesday last, has destroyed the medical buildings. We learn by cable, and also from Professor Osler, who has been similarly informed, that the library has been saved and a portion of the medical museum, which was reported in the early telegraphic messages as totally lost. This museum contains an exceptionally fine collection of specimens illustrating the pathological conditions of the heart and arteries, and these, we are glad to learn, have survived the conflagration.

A PROPOSED MEMORIAL TO DR. MÖBIUS.

SEVERAL friends of the late Dr. Paul Julius Möbius of Leipsic are taking steps to establish a fund, the annual proceeds of which will constitute a Möbius prize to be awarded to the authors of approved articles on neurological subjects. The present intention is that the awards shall be made for published and for unpublished works in alternate years. An appeal is being made for support and promises of subscriptions may be sent to Dr. Curt Reinhardt of Lessingstrasse, Leipsic. Dr. Möbius was, of course, a well-known writer on nervous and mental diseases, and was one of the editors of the journal *Psychiatrisch-Neurologische Wochenschrift*.

THE family of the late Mr. Wakley desire to record their sincere appreciation of the very numerous expressions of sympathy and condolence in their great loss which they have received from members of the medical profession and others. They trust that this general acknowledgment of their gratitude will be accepted now and that later they may be able to reply individually to the many kind friends whose letters evincing the regard in which the senior editor of THE LANCET was held have been a great solace to them in their bereavement.

THE Department of Public Health of Queensland in a bulletin dated March 2nd reports case 24 of bubonic plague, a female, aged 46 years, which was notified from the General Hospital on Feb. 22nd after death. The diagnosis was confirmed by a post-mortem examination. A bulletin dated March 9th reports case 25, a male, aged 45 years. He was attacked on March 7th and removed to the hospital.

THE organising committee appointed for the festivities in connexion with the twenty-fifth anniversary of the Russian Pirogoff Society of Surgery announces that a special meeting (*séance solennelle*) will be held on May 8th (April 25th O.S.) at 2 P.M. in the hall of the Pirogoff Museum.

THE Ingleby Lectures of the University of Birmingham will be delivered by Dr. Thomas Wilson, obstetrical officer to the General Hospital, Birmingham, in the medical lecture theatre, at 4 P.M., on May 9th and 16th. The subject is Inflammations of the Uterine Appendages.

LORD CROMER'S REPORT ON THE FINANCES, ADMINISTRATION, AND CONDITION OF EGYPT AND THE SOUDAN IN 1906.

ESPECIAL interest centres round this official report in view of the retirement of Lord Cromer after nearly half a century's work in the public services. He was endowed by nature with a vigorous physique, as shown by the fact that he could hold his own at lawn tennis until the age of 60 with men of only half his years. But residence in hot climates, even though relieved by summer visits to this country, eventually tells on the strongest constitution, and his friends have watched with concern some evidence of declining health during the last two or three years.

On former occasions we have noted the gradual growth of the annual reports on Egypt, both in size and importance, and the document now before us, consisting of 151 pages, yields to none in its wide comprehension, lucidity, and mastery of many complex questions. Blue-books are usually not considered very popular reading by the general public, but Lord Cromer tells us that of the report for the year 1905 no less than 11,500 copies were sold or distributed, some 825 having been published in French and the remainder almost equally in Arabic and in English. Since the report was written Sir Horace Pinching has retired from the post of Director-General of the Public Health Department and that he will be succeeded by Dr. W. P. G. Graham, the Vice-Director-General of that department. The sanitary staff has increased in numbers by 30 Europeans and 115 Egyptians during the last ten years. The six posts of chief inspectors are at present all held by British officials, but it has been decided that the next two vacancies that occur in this class shall be filled by Egyptian medical officers. This sounds like a retrograde policy, for we believe that the former Egyptian holders of these posts were found to be somewhat useless in grappling with plague or cholera epidemics. But perhaps it is intended to give the native officers in the future some special instruction in Europe on the important subjects of public health and tropical hygiene. A few paragraphs later we read that it has been found impossible to extend the scope of the Agricultural Society more rapidly on account of the impossibility of finding young Egyptians who possess the necessary qualifications. This is regrettable, because the Egyptian is as good at agricultural work as he has so far proved to be deficient in sanitary administration and the power of assuming individual responsibility.

There is no mention in the report of the plan which is being elaborated for draining Cairo, probably because the information supplied from the various Government departments only takes us to the end of last year; but Lord Cromer reminds the Cairo householders, who at present pay only one tax at the rate of about 8 per cent. on their rental, that the question of imposing further local taxes, and possibly that of creating a municipality, must soon be raised. The drainage of Alexandria has been much improved since a quay wall and a drain collector were made. Altogether a sum of about £670,000 has been granted for improving the harbour works at Alexandria and this will include the prolongation of the existing breakwater and throwing out another breakwater from the side of the new cattle quay at the slaughter-house, and it is hoped that this will entirely prevent the westerly swell from entering the port.

Under the heading of infectious diseases we find a diminution in small-pox, typhus fever, and typhoid fever, an increase in diphtheria, and figures which have not undergone much change in measles. The plague statistics showed 631 cases and 475 deaths, as compared with 266 cases and 181 deaths in 1905. Though these figures are higher than during the preceding year the epidemic is still kept in check by the

constant attention and rigid supervision of the sanitary inspectors. Last autumn Egypt and the Soudan were visited by a serious but not dangerous epidemic of dengue.

The Government Anti-rabic Institute began its work in May and treated during eight months 451 people, of whom 63 were Europeans, 367 were Egyptians, and the remaining 21 patients came from Palestine or Syria expressly to undergo the treatment. Out of the total number treated only four died from hydrophobia. This disease has undoubtedly decreased since the muzzling order and destruction of ownerless dogs have been adopted in Cairo, Alexandria, and Port Said, but it will never be stamped out until the Government takes more energetic measures all over the country against both dogs and the wolf-like jackals which lurk on the outskirts of villages. Mr. E. H. Ross, the medical officer of health at Port Said, has done very good work in diminishing malaria by systematically destroying mosquitoes and a similar limited campaign has been undertaken in Suez and Cairo. The ophthalmic hospitals started by Sir Ernest Cassel, and now adopted by the Government, continue to do excellent work; during the past year about 7000 new patients were treated and 5800 operations, mostly on the eyelid, were performed. The number of Egyptians who took part in the pilgrimage to Mecca was 11,615 and in order further to minimise the risk of these devotees introducing infectious disease on their return the quarantine board is erecting a disinfecting establishment at Suez. With regard to the water-supply of towns the Jewell filter plants at Alexandria and Mansura continue to give entire satisfaction and several other towns are now being supplied with similar installations.

"Complaints are frequently made that the Kasr-el-Ainy Hospital at Cairo is not a suitable building for hospital purposes. I do not doubt but these complaints are well founded, and that at some future time it will be necessary to build a new hospital in Cairo, but, in view of the very large demands for buildings in other directions, I fear that some time must elapse before this work can be taken in hand." In another paragraph we are told that besides the money spent by the prisons, sanitary, and Customs departments, who supervise their own expenditure under this head, no less than £378,000 were spent in 1906 on public buildings. It is to be hoped that Lord Cromer's successor may find himself able to reconsider the urgent need of bringing the structure at Kasr-el-Ainy up to the level of modern European hospitals. The present building dates from the time of Muhammad Ali and stands on a site which has been occupied for more than four centuries. It is much to the credit of past and present surgeons that aseptic surgery is able to hold its own in so antiquated, though reconstructed, a building. Unless we are mistaken, this hospital of more than 400 beds, standing in the same compound as the only school of medicine in Egypt, serves for the clinical instruction of about 100 male and 50 female students, who, when their course is ended, are distributed all over Egypt and the Soudan as pioneers of hygiene.

Three large central hospitals are now under construction in the Soudan—at Khartoum, the Atbara, and Port Soudan on the Red Sea coast. In order to try to mitigate the high infantile mortality in Cairo a dispensary for sick children was opened by Lady Cromer a year ago and is supported by voluntary contributions in the hopes that similar institutions may be started in other towns by rich Egyptians. The chief maladies of the out-patients are ophthalmia, favus of the head, eczema, tuberculous glands, and diarrhœa.

The number of beds in the lunatic asylum has been raised to 640 and by the aid of an adjoining building 172 more patients will shortly be accommodated. Lord Cromer draws attention to the fact that the lunacy law, so often suggested by Dr. J. Warnock, is still non-existent. The number of admissions to the asylum from hashish insanity is steadily diminishing, but it cannot be doubted that the drug (cannabis indica) is still extensively used. No less than 15,345 kilogrammes were seized by the authorities during the year, all from Greece.

The amount of alcoholic liquors imported is increasing; whisky is becoming popular with the younger members of the upper classes, who also drink wine. They imitate the habits of Europeans and lack their power of self-control. The respectable European who drinks to excess is an exception, whereas there is a great tendency for the Egyptian who drinks at all to drink a great deal more than is good for him. Fortunately the fellaheen have not acquired the alcoholic habit to any extent. The number of cases of drunkenness reported throughout Egypt during the year exceeded 10,000. Many of the drinking shops are owned by local subjects, and no less than 191 of the proprietors are Moslems. The Capitulations prevent the Government having any adequate powers to deal with this important question. The wholesale trade in alcohol is at present not subject to any regulations, and the same may be said of the retail sale of drink in shops where no liquor is drunk on the premises. Moreover, anyone in Cairo, Alexandria, Port Said, Ismailia, and Suez who wishes to do so can open a drinking shop, subject to making a declaration to the police 15 days beforehand, and this licence, when once issued, cannot be withdrawn save by order of a law court. In the Soudan, which is, happily, free from Capitulation obstacles, no person is allowed to import liquor without a licence, the penalty for violation of the law being a fine not exceeding £100 and the confiscation of all the wine, spirits, or other alcoholic liquors in the possession of, or upon the premises of, the offender. The fee for the licence is £50 and it is not permitted to sell liquor to any native of the Soudan or to any British soldier of the army of occupation. In spite of stringent laws there is a good deal of drunkenness in some parts of the Soudan, due to drinking "merissa," a native beverage made from millet.

A few years ago the medical school was distinctly unpopular with Egyptian parents, but last year no less than 97 students applied to be admitted to take the place of 20 who were leaving the school with their diplomas. It was not possible to admit more than 53. It has been found necessary to increase the teaching staff. Dr. D. E. Derry was appointed assistant to the professor of anatomy, Dr. R. G. White as assistant to the professor of pathology and bacteriology, and more lately Dr. R. S. Dobbin was appointed professor of gynæcology and Dr. H. B. Day as medical registrar and tutor. The report concludes by drawing attention to the excellent work done by Dr. A. Balfour and others at the Wellcome Research laboratories at Khartoum. Dr. C. M. Wenyon, protozoologist to the London School of Tropical Medicine, has been engaged for a year's work in the upper waters of the Nile, thanks to a special donation from Mr. Wellcome.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on April 11th, Mr. HENRY MORRIS, the President, being in the chair.

The SECRETARY reported the death on March 25th of Professor Ernst von Bergmann of Berlin, an Honorary Fellow of the College. The President was requested to write to the relatives of the late Professor Bergmann to express the sympathy of the Council.

In accordance with the recommendations of the Jacksonian Committee, the Jacksonian prize was awarded to Mr. Donald J. Armour, the author of the dissertation bearing the motto, "Palmam qui meruit ferat." The subject of the essay was "The Diagnosis and Treatment of those Diseases and Morbid Growths of the Vertebral Column, Spinal Cord, and Canal, which are amenable to Surgical Operations."

The following subject was chosen for the Jacksonian prize for the year 1908: "The Pathology and Treatment of those Conditions and Diseases of the Colon which are Relievable by Operative Measures."

The following subject was chosen for the next triennial prize: "The Histological Anatomy of the Lymphatic and Hæmo-lymphatic Glands, more especially with reference to the Changes which these Glands Undergo in Acute Infectious Processes."

The following two Members of 20 years' standing were elected Fellows:—Alexander Hill, Master of Downing College, Cambridge; and Arthur Thomson, Reader in Human Anatomy, Oxford.

Mr. Frederic S. Eve was elected a member of the Board of Examiners in Dental Surgery, in the vacancy caused by the retirement of Mr. C. H. Golding-Bird.

The PRESIDENT reported that Mr. Cecil F. Beadles had duly delivered a course of three Hunterian lectures on "The Cerebral Arteries."

The PRESIDENT stated that Mr. William Wright's Hunterian lectures on "The Prehistoric and Early Historic

Inhabitants of England" would be delivered on May 6th, 8th, and 10th.

A letter was read from Mr. J. Ward Cousins reporting the proceedings of the Central Midwives Board during the past year. In this letter Mr. Cousins reviewed the judicial proceedings of the Board and reported a marked improvement in the administration of the Act by the county councils and borough councils of England and Wales. He commented with regret upon the fact that as yet there has been no attempt to amend the Act so as to provide just payment for medical men who are summoned to assist midwives in cases of difficulty and danger, notwithstanding the strong professional and official opinions expressed upon this subject.

The thanks of the Council were given to Mr. Cousins for his services as the representative of the Council on the Central Midwives Board.

The Council requested the President and the Vice-Presidents to write to Lord Lister to express the congratulations of the Council on the eightieth anniversary of his birth. The letter sent was as follows:—

Dear Lord Lister—The Council of the Royal College of Surgeons, at their meeting on the 10th instant, deputed us to write and convey to you the sincere good wishes of every member of the Council on the completion of the eightieth year of your age. Crowned with honour and regarded with grateful esteem and admiration as you have been for years past we have heard with great gratification of the further evidences of universal homage which have reached you from all parts of the world on this occasion. But by none are these feelings of esteem and homage more profoundly and genuinely entertained for you than by the members of the Council of this College.

We recall with pride and satisfaction that for eight years you occupied a seat on this Council; that your services to the science of surgery have been commemorated by us in making you one of the very small number of recipients of the honorary medal of the College; and that your portrait was presented by Fellows and Members of the College in 1897 as an expression of respect and admiration for you as a man and as a tribute to you as a great benefactor of the human race. This portrait we regard as one of the most valued possessions of the College, and we delight in the fact that it will convey to our successors, for all time, the likeness of him who is, and will always be regarded as, the greatest master of modern surgery.

We are sure we shall be expressing the thoughts, not only of the present and of ex-members of the Council, but also of every Fellow and Member of this College when we say that you, more than any other who has ever lived, have succeeded in applying scientific and practical surgery to the benefit of mankind and to the sparing of human life and suffering. The blessings which have followed from your life's work have been innumerable, and the knowledge that they increase and become, as time passes, more and more manifest must, we feel assured, be a source of extreme happiness and consolation to you in your distinguished and honourable retirement.

We are, dear Lord Lister, yours very truly,
HENRY MORRIS, President.
EDMUND OWEN, } Vice-Presidents.
RICKMAN J. GODLEE }

A letter was read from Sir Archibald Geikie, President of the Geological Society, stating that the society, founded in 1807, intends to celebrate its centenary on Sept. 26th, 27th, and 28th next, and that it would give the society much pleasure if the College would appoint a delegate to attend the celebration. The President was nominated.

MEDICINE AND THE LAW.

Medical Men and Coroners' Inquests.

THE difficulties in which medical men and coroners may be placed by the existing state of the law were illustrated in an inquest held at Wrexham recently, a day or two after Lord Loreburn had accorded sympathetic hearing to suggestions which were made to him by the Medico-Legal Society.[1] An infant had died from convulsions, according to the opinion of a midwife, and Dr. H. Drinkwater, who was called in some time afterwards, seems to have found nothing to indicate that this view was incorrect. He was, however, of course, not in a position to give a certificate of the cause of death and apparently he declined to express an opinion on the subject to the coroner's officer. We do not gather that at the inquest which eventually was held any medical evidence was given, the witnesses being the mother of the child and a second woman. The latter was presumably the midwife mentioned, although it is worth noting, with regard to her intervention, that the child, whose age is not given, was old enough to have been vaccinated and to have recovered. The fact that Dr. Drinkwater had been told by the midwife that the child had died from convulsions was laid before the jury, with the additional statement that he had not expressed dissent from her view. The coroner also told the jury that if he had had an opinion from Dr. Drinkwater as to the cause of death an inquest would not have been necessary, although he, very properly, attributed no blame to the medical man for withholding it. In the circumstances it seems clear that had the coroner been in a position to obtain from the medical man an authoritative opinion as to what the child had died from, the local authority would have been saved the expense of an inquest and the parents of the child would not have undergone the trouble and pain which the holding of such an inquiry must cause. It cannot, however, reasonably or justly be expected that a medical man should impart his professional opinion upon so serious a subject gratis in order to save money to a public authority. This would be an act of charity to the authority in question such as is not expected from the members of any other profession. Moreover, the holding or not holding of an inquest should be a matter of consultation or, at least, of direct communication between the medical man and the coroner, not between the medical man and the coroner's officer. No doubt if the Lord Chancellor takes action in the direction indicated by those who have recently approached him he will also have before him recommendations and suggestions from others qualified to represent the views of medical men practising in rural as well as in urban and metropolitan localities.

[1] THE LANCET, April 13th, p. 1027.

The Plea and Test of Insanity.

The recent Scottish case of the Lord Advocate *v.* Brown tried before the Lord Justice General is worthy of note as it instances both an anomaly in the practice of the law and an advance in the legal view of the test of insanity. The Public Prosecutor accused a man of murder; at the trial the prosecution alleged that the man was incapable of pleading and hence that he could not be tried as he was insane; the accused objected to being denied a trial and pleaded innocence; he was found insane during the trial and hence was committed to a criminal lunatic asylum to await trial upon recovery. It is customary in Scots' law for the Crown in prosecutions to comment on the state of mind of the accused, thus differing from recent English practice.[1] In considering whether the accused was insane the learned judge affirmed that the law must take cognisance of the advances of science, so that in this case the jury must keep in mind the class of insanity which was alleged to afflict the prisoner: they should find him insane if they thought he was incapable of instructing his counsel with a certainty of not being deceived as to what his action had been; it was proof of insanity if there was exhibited "an inability to give instructions for the maintenance of a plea of innocence as a sane man would do." There is in this ruling an approach to a bridging over of the gap which has hitherto existed in legal theory between responsibility and alienation of reason, and, as Dr. T. S. Clouston has shown in a letter to the *Scotsman*, there is in this decision a reconciliation of professional views. The anomaly consists in that under the operative Lunacy Act, 1857, the prisoner suffered similarly whether he was insane at the trial (and so was not found "Guilty" or "Not guilty") or he was found to have been insane when he committed the felonious deed. In both cases he had to be sent to a criminal lunatic asylum. The amelioration of the legal view of insanity will not always tend to clemency, for though humanity may prevail where insanity existed at the time the act was performed it will be hard on prisoners who while yet untried are prevented on the ground of insanity from either pleading themselves or instructing criminal defence.

[1] THE LANCET, Feb 10th, 1906, p. 399.

ASYLUM REPORTS.

City of London Asylum (Annual Report for 1906).—The average number resident during the year 1906 was 567 (253 males and 314 females). The total number remaining on Dec. 31st, 1906, was 564; of these 299 were rate-paid cases and 265 private cases. The admissions during the year numbered 144 (76 males and 68 females); of these 18 only were rate-paid cases. Dr. R. H. Steen states that of those admitted only 23 per cent. offered any reasonable prospect of recovery. As to the cause of the insanity in those admitted the data available were insufficient to render possible any trustworthy conclusion; suffice it to say that inheritance of mental

disease was present in a very large number and alcoholic excess in 25 cases. 34 persons (21 males and 13 females) were discharged recovered during the year, and the proportion (per cent.) of recoveries to admissions (excluding transfers) was 39·62 for males, 29·54 for females, and 35·05 for the two sexes. During the year 19 patients were granted leave of absence on trial, and in selected cases of the rate-paid class a weekly allowance was made during the period of probation. This allowance is granted in accordance with Section 55 of the Lunacy Act. Forty-seven patients (23 males and 24 females) died during the year; the proportion (per cent.) of deaths to the daily average number resident was 9·09 for males, 7·64 for females, and 8·29 for the two sexes. General paralysis of the insane was the cause of death in 11 cases. The weekly charge for rate-paid patients, which had been 12*s.* 3*d.* since July 1st, 1901, was reduced to 11*s.* 8*d.* on Jan. 1st, 1906, but the visiting committee states that "owing to the many expenses which have to be met and the general increase in the cost of many articles of daily use and consumption which fall upon this account [maintenance account] we do not anticipate that the reduction will be permanent." The farm account showed a profit on the year's working of £598. Dr. Steen records with satisfaction that the committee has sanctioned for non-statutory purposes the use of the title "City of London Mental Hospital" in the place of the old title, "City of London Asylum." He reports that this concession has already called forth many expressions of gratitude both from the patients and their friends.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of Bath.—The sanitary authority of this city has subsidised beds at the Winsley Sanatorium for Consumption and during 1906 such beds were occupied by 15 patients. The annual report of the sanatorium is, as regards the Bath beds, a little difficult to interpret and to avoid misunderstanding the passage relative thereto is given verbatim. Of the 15 patients from Bath "five showed no signs of active disease on discharge and four were certainly fit for some work, whilst four showed marked improvement and were gaining ground on discharge, though there was no chance of return to work for some little while. Five cases showed no improvement, though it is only fair to say that two of these cases were extremely advanced and died shortly after leaving the sanatorium, while two others had serious complications on admission and were eventually advised to seek surgical aid." Apparently there had been great difficulty in securing early cases for sanatorium treatment, although we gather from an extract from the sanatorium report, which is furnished by Dr. W. H. Symons, the medical officer of health of Bath, that that city is now sending earlier cases than formerly.

Woking Urban District.—During the summer of 1906 occasional discolouration of the water drawn from the taps in this district was noticed, and although it appears clear that this was due to deposits of iron it is not stated whether such deposits were caused by the traces of iron which are contained in the water drawn from the well itself or whether it was caused by corrosion of the water mains. There is no doubt that waters which contain iron at the source are only freed from this metal with the greatest difficulty, but it is nevertheless possible by suitable treatment materially to diminish the amount which is likely to reach the consumer. Dr. R. W. C. Pierce, the medical officer of health, has during 1906 paid special attention to the condition of the dairies, cowsheds, and milkshops in the district, and the recent report of the Royal Commission on Tuberculosis has enormously accentuated the importance of action in this sense. As Dr. Pierce observes, there is, no doubt, need for considerable modification of the Model Regulations under the Dairies, Cowsheds, and Milkshops Order. They are, as at present worded, very difficult to apply and there is too much scope for differences of opinion. Something more precise is necessary. Dr. Pierce refers to a plan which has, he states, been adopted in New York, where certificates are issued to dairymen if their milk reaches a certain standard of quality and freedom from dirt. Such certificates are, it seems, issued by a local medical society. If it is practicable to devise a reasonable bacteriological standard for all times of the year there might be advantage in adopting this standard, but it appears to us that it should only be adopted under the very best expert advice and in no way associated with any company which has shareholders to consider. Probably the local sanitary authority might begin by adopting some standard of general cleanliness, any certificates issued being renewable annually.

Plympton St. Mary Rural District.—The council of this district possesses apparently the right to send one or more patients to the Didworthy sanatorium for consumption and the medical officer of health invited the Poor-law medical officers to send in the names of any patients who were thought suitable for the institution. It seems, however, that only one patient was discovered in a sufficiently early phase of the disease to be suitable for admission and he, after a short stay at the sanatorium, was discharged "relieved but not cured."

Borough of Richmond.—Dr. J. H. Crocker, the medical officer of health of this borough, is also medical officer to the education committee, and in this latter capacity he reports that there has recently been amongst the school children a distinct improvement in the cleanliness of the bodies and clothing of the children. In addition to cases of infectious disease Dr. Crocker's attention seems to have been called mainly to cases of suspected ringworm, of defective sight, and of vermin in the hair and on the body. Visits have been paid, in addition to the elementary schools, to the county school and to the girls' high school. No actual treatment was undertaken by the medical officer of health but in cases where medical advice appeared desirable the patients were advised to procure it.

Borough of Weymouth and Melcombe Regis.—Mr. W. B. Barclay, the medical officer of health of this borough, has made an inspection of the cowsheds contained within its limits and has recorded his notes in the annual report. They will, we hope, be read by all the councillors as also by others. Mr. Barclay does not, as is the case with some medical officers of health, find all the cowsheds "fairly satisfactory" but he shows by his notes that the majority of them are in an eminently undesirable state. As he rightly observes, the cowman has a rooted objection to the use of water as also to cleansing the udders and teats of the cows before milking. He observed one cowman while in the act of milking the cows rub his hands at intervals "on the filthy sides of the animal," and in a manner so unconsciously as to show that this was his habitual practice. Speaking generally, Mr. Barclay says, "the condition of the rural cowsheds is most unsatisfactory." We should like to see all medical officers of health equally candid with regard to the cowsheds in their districts. We might then hope to see some reduction in our infantile mortality.

Ashton-in-Makerfield Urban District.—Reference is make in the current annual report of Mr. Nathan Hannah, the medical officer of health of this district, to the damage done by subsidences caused by mining operations which by the wide cracks which are thereby caused in the walls of dwellings conduce to dampness and draughts as well as, occasionally, to the risks of the spread of infection from one house to another. Mr. Hannah has also noticed smoke coming from one house to another through these crevices. To those who live in non-mining districts the havoc wrought by mining subsidences is altogether unknown and in the coal country there is not sufficient attention paid to the matter. Where the miners' cottages belong to the mine owners the miners hesitate to complain and where the local sanitary authority is largely composed of mine owners and mine agents, the sanitary inspector, who has been known to be also a rent collector, is liable to overlook these matters. Nevertheless, the nuisance is a very real one.

County Borough of Blackburn.—Inquiries have systematically been made in this borough since 1897 as to the methods of feeding infants, and Dr. Alfred Greenwood reports that in that year 63 per cent. of the children were fed at the breast alone. According to these observations the proportion of breast-fed children has steadily decreased until in 1905 only 38 per cent. were exclusively breast-fed. It would be useful to know whether the same officer has made the observations during the whole period. If this is true, there is, as the medical officer of health observes, a contrast between this state of affairs and that which obtains in Japan, where it is alleged that 99 per cent. of the infants are breast-fed. As

regards the use of the long-tube bottle for artificial feeding there has been, it seems, in Blackburn some improvement year by year. The average infantile mortality in Blackburn since 1898 has ranged from 100 per 1000 births in the lowest ward to 245 in the highest. Dr. Greenwood points out that the fact of the registration of births being only required before the child is six weeks old precludes the officer of the sanitary authority from taking any steps during the first few weeks of life when the infantile mortality is at the highest point and he advocates the adoption of the system in vogue in Huddersfield by which notification of birth is required within two days. In addition to the usual precautions relative to the reduction of infantile mortality a course of lectures is given to teachers in school hygiene and lessons are given to the older girls in the feeding and care of infants at certain of the elementary schools, and great importance is laid upon this course by Dr. Greenwood who is medical officer to the education committee. An important voluntary movement, much on the same lines as takes place in certain parts of Paris, is now being organised in Blackburn by some local philanthropists. A number of poor women, who have either been quite recently confined or are within a month of that event, are to be supplied daily and gratuitously with a suitable ready cooked dinner from a restaurant which is to be opened shortly. In return for this the mother is to feed her baby at the breast and to allow the child to be weighed once weekly. There is much that is worth reading in Dr. Greenwood's report.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8979 births and 5196 deaths were registered during the week ending April 13th. The annual rate of mortality, which had been equal to 17·7 and 17·9 per 1000 in the two preceding weeks, declined to 16·9 in the week under notice. During the 13 weeks of last quarter the death-rate in these towns averaged 19·0 per 1000, the rate during the same period in London being 19·2. The lowest rates in the 76 towns last week were 6·3 in Handsworth, 8·1 in Hornsey, 8·5 in Leyton, and 9·1 in Willesden; the rates ranged upwards in the other towns to 23·1 in Salford and Huddersfield, 24·8 in South Shields, 27·1 in Burnley, and 30·8 in Birkenhead. The 5196 deaths in the 76 towns showed a decline of 296 from the number in the previous week, and included 544 which were referred to the principal epidemic diseases, against 559 and 568 in the two preceding weeks; of these, 228 resulted from measles, 171 from whooping-cough, 50 from diarrhœa, 37 from diphtheria, 30 from "fever" (principally enteric), 28 from scarlet fever, but not one from small-pox. No death from any of these epidemic diseases was registered last week in Leicester, Derby, Plymouth, Halifax, and in eight other smaller towns; the annual rates from these diseases, however, ranged upwards to 4·1 in Newport (Mon.), 4·6 in Middlesbrough, 7·5 in West Bromwich, and 11·0 in Birkenhead. The 228 fatal cases of measles were fewer by 23 than the number in the previous week; the highest annual death-rates therefrom were 3·4 in Bolton, 4·1 in Newport (Mon.), 6·8 in West Bromwich, and 8·8 in Birkenhead. The deaths from whooping-cough, which had been 175 and 170 in the two previous weeks, were 171 last week; the highest death-rates from this disease being 2·0 in Burnley, 2·3 in East Ham, and 2·6 in Middlesbrough. The 37 fatal cases of diphtheria showed a further decline from the numbers in the two preceding weeks, but included eight in London, four in Manchester and Salford, and three in Birmingham. "Fever" caused an annual rate of 1·4 in South Shields and 2·0 in Great Yarmouth, and scarlet fever a rate of 1·5 in Grimsby. The 50 deaths attributed to diarrhœa showed an increase upon recent weekly numbers. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 2657 and 2666 in the two previous weeks, had declined to 2637 at the end of the week under notice; 296 new cases were admitted during the week, against 330 and 352 in the two preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 354 and 412 in the two previous weeks, declined again to 355 in the week under notice, but exceeded by 45 the corrected average number in the corresponding week of the five years 1902-06. The 24 deaths referred to influenza somewhat exceeded the corrected average. The causes of 42, or 0·8 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 49 other of the 76 towns; the proportion of uncertified deaths, however, again showed considerable excess in Birmingham, South Shields, Sunderland, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 20·3 and 19·4 per 1000 in the two preceding weeks, rose again to 20·2 in the week ending April 13th, and exceeded by 3·3 the mean rate during the same week in the 76 large English towns. The rates in the eight Scotch towns ranged from 14·1 and 15·2 in Paisley and Aberdeen to 21·4 in Dundee and 23·6 in Glasgow. The 700 deaths in the eight towns showed an increase of 27 upon the number in the previous week, and included 124 which were referred to the principal epidemic diseases, against 102, 107, and 114 in the three preceding weeks. These 124 deaths were equal to an annual rate of 3·6 per 1000, which exceeded by 1·8 per 1000 the rate from the principal epidemic diseases in the 76 English towns; they included 49 which were referred to "fever," 55 to whooping-cough, eight to measles, five to diphtheria, five to diarrhœa, two to scarlet fever, and not one to small-pox. The deaths referred to "fever," which had been 39 and 48 in the two preceding weeks, further rose to 49 in the week under notice, and included 31 in Glasgow, eight in Edinburgh, four in Greenock, and three both in Leith and in Dundee; cerebro-spinal meningitis caused 30 deaths in Glasgow, eight in Edinburgh, two in Dundee, three in Leith, and one in Greenock, in addition to a fatal case of typhus fever. The 55 deaths from whooping-cough in the eight towns included 45 in Glasgow, five in Edinburgh, and three in Aberdeen. Of the eight fatal cases of measles four were returned in Glasgow and three in Edinburgh; and four of the five deaths referred to diphtheria occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had declined from 155 to 109 in the four preceding weeks, rose again to 118 in the week under notice, but were 52 below the number in the corresponding week of last year. The causes of 17, or 2·4 per cent., of the deaths registered in the eight towns during the week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·8 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 22·3, 24·3, and 28·3 per 1000 in the three preceding weeks, declined again to 26·6 in the week ending April 13th. During the 13 weeks of last quarter the death-rate in the city averaged 27·2 per 1000, the rates during the same period not exceeding 19·2 in London and 19·6 in Edinburgh. The 199 deaths of Dublin residents registered during the week under notice showed a decline of 13 from the number in the previous week, and included 19 which were referred to the principal epidemic diseases, against 12 and 15 in the two preceding weeks; of these, seven resulted both from measles and from whooping-cough, two from diphtheria, two from diarrhœa, one from "fever," and not one either from small-pox or from scarlet fever. These 19 deaths were equal to an annual rate of 2·5 per 1000, the rate during the same week from the principal epidemic diseases being 1·6 in London and 2·7 in Edinburgh. The fatal cases of measles in Dublin exceeded the number in any previous week of this year; and those of whooping-cough were within one of the high number in the previous week. The 199 deaths from all causes included 42 of children under one year of age and 58 of persons aged upwards of 60 years, each of these numbers showing a further increase upon those returned in recent weeks. Six inquest cases and three deaths from violence were registered; and 75, or 37·7 per cent., of the deaths occurred in public institutions. The causes of nine, or 4·5 per cent., of the deaths in Dublin

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MARCH, 1907.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1907.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.													
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal fever.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
LONDON	4,758,218	—	1837	617	1	92	1	20	316	15	2899	6·6	—	191	29	59	187	—	12	1	50	526	1·5	6172	16·9	125
West Districts.																										
Paddington	149,909	—	47	12	—	3	—	1	12	—	75	6·5	—	1	3	—	13	—	1	—	2	20	1·7	190	16·5	132
Kensington	181,842	—	38	9	—	—	—	—	10	—	57	4·1	—	1	—	—	10	—	—	—	4	15	1·1	229	16·4	125
Hammersmith	122,337	—	30	16	—	5	—	—	8	—	59	6·3	—	6	—	3	3	—	—	—	—	12	1·3	175	18·6	175
Fulham	165,749	—	41	31	—	3	—	2	7	—	84	6·6	—	8	—	2	4	—	—	—	—	14	1·1	189	14·8	114
Chelsea	74,857	—	13	12	—	—	—	1	2	—	28	4·9	—	—	—	—	1	—	—	—	1	2	0·3	101	17·6	151
City of Westminster	172,219	—	38	8	—	4	—	—	8	1	59	4·5	—	1	1	1	2	—	1	—	—	6	0·5	211	16·0	114
North Districts.																										
St. Marylebone	127,718	—	29	15	—	—	—	—	8	—	52	5·3	—	—	1	1	3	—	—	—	—	5	0·5	158	19·2	69
Hampstead	91,137	—	28	10	—	2	—	—	3	—	43	6·2	—	2	1	—	3	—	—	—	1	7	1·0	90	12·9	105
St. Pancras	236,713	—	36	31	—	9	—	1	10	2	89	4·9	—	2	3	2	7	—	—	—	—	14	0·8	302	16·6	100
Islington	347,017	—	74	25	—	5	—	2	14	—	120	4·5	—	3	—	2	17	—	2	—	2	26	1·0	412	15·5	132
Stoke Newington	53,613	—	14	6	—	—	—	—	6	—	26	6·3	—	—	—	1	2	—	—	—	1	4	1·0	61	14·8	101
Hackney	232,993	—	72	44	1	3	—	1	16	1	138	7·7	—	11	—	3	11	—	1	—	4	30	1·7	292	16·5	127
Central Districts.																										
Holborn	55,134	—	12	4	—	2	—	—	—	—	18	4·3	—	—	—	—	4	—	1	—	—	5	1·2	85	20·1	96
Finsbury	96,732	—	27	17	—	—	—	1	11	1	57	7·7	—	2	1	1	3	—	—	—	3	10	1·3	150	20·2	118
City of London	20,310	—	3	—	—	—	—	—	1	—	4	2·6	—	—	—	—	—	—	—	—	—	—	—	23	14·8	167
East Districts.																										
Shoreditch	115,662	—	37	23	—	3	—	—	11	1	75	8·5	—	16	—	4	11	—	1	—	—	32	3·6	204	23·0	149
Bethnal Green	130,831	—	49	24	—	2	—	1	17	2	95	9·5	—	17	2	4	4	—	—	—	—	27	2·7	196	19·5	117
Stepney	308,923	—	88	55	—	17	—	1	24	2	187	7·9	—	18	2	4	6	—	3	—	8	41	1·7	435	18·4	154
Poplar	171,086	—	49	19	—	3	—	1	9	2	83	6·3	—	9	3	5	5	—	—	—	3	25	1·9	109	15·9	101
South Districts.																										
Southwark	209,781	—	85	28	—	5	—	—	16	1	135	8·4	—	3	4	4	15	—	—	—	4	30	1·9	336	20·9	132
Bermondsey	128,263	—	45	22	—	2	—	—	7	—	76	7·7	—	10	1	1	6	—	2	—	2	22	2·2	221	22·5	158
Lambeth	313,538	—	73	20	—	6	—	—	21	1	121	5·0	—	8	1	4	14	—	—	—	1	28	1·1	416	17·0	157
Battersea	181,736	—	63	27	—	4	—	2	17	—	113	8·1	—	2	2	4	7	—	—	—	4	19	1·4	220	16·5	147
Wandsworth	281,419	—	70	51	—	5	—	5	11	—	142	6·6	—	4	1	6	8	—	—	—	2	21	1·0	268	12·4	106
Camberwell	277,059	—	84	26	—	3	—	1	30	—	144	6·8	—	35	2	3	14	—	—	—	4	58	2·7	382	18·0	163
Deptford	116,510	—	39	24	—	—	1	—	12	—	76	8·5	—	9	1	1	3	—	—	1	1	16	1·8	152	17·0	107
Greenwich	107,122	—	27	13	—	2	—	—	8	—	50	6·1	—	16	—	1	1	—	—	—	1	19	2·3	127	15·4	103
Lewisham	152,532	—	41	27	—	2	—	—	7	—	77	6·6	—	1	—	1	10	—	—	—	2	14	1·2	155	13·2	81
Woolwich	129,336	—	85	18	—	2	—	—	10	1	116	11·7	—	13	—	1	—	—	—	—	—	14	1·4	143	14·4	116
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

last week were not certified; the percentage of uncertified deaths during the week did not exceed 0·3 in London and 2·9 in Edinburgh.

VITAL STATISTICS OF LONDON DURING MARCH, 1907.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases (including cerebro-spinal fever) specified in the table was equal to an annual rate of 6·6 per 1000 of the population, estimated at 4,758,218 persons in the middle of the year; in each of the two preceding months the rate had been 6·8 per 1000. The lowest rates last month were recorded in the Cities of London and Westminster and in the boroughs of Kensington, Islington, and Holborn; and the highest rates in Shoreditch, Bethnal Green, Southwark, Battersea, Deptford, and Woolwich. The prevalence of scarlet fever showed a marked decline from that recorded in the preceding month; among the various metropolitan boroughs this disease was proportionally most prevalent in Bethnal Green, Southwark, Bermondsey, Battersea, Deptford, and Woolwich. The Metropolitan Asylums hospitals contained 2614 scarlet fever patients at the end of last month, against 3787, 3116, and 2829 at the end of the three preceding months; the weekly admissions averaged 312, against 328, 299, and 323 in the three preceding months. Diphtheria has showed but little variation in prevalence in each of the past three months; this disease was proportionally most prevalent during the month under notice in Hackney, Shoreditch, Bethnal Green, Stepney, Wandsworth, and Deptford. The number of diphtheria patients under treatment in the Metropolitan Asylums hospitals, which had been 955, 921, and 916 at the end of the three preceding months, had risen again to 1021 at the end of last month; the weekly admissions averaged 136, against 128, 124, and 126 in the three preceding months. The prevalence of enteric fever, which had shown a continued decline in the four preceding months, was again slightly diminished during March; among the various metropolitan boroughs this disease was proportionally most prevalent in Hammersmith, St. Pancras, Holborn, Shoreditch, Stepney, and Southwark. There were 93 enteric fever patients under treatment in the Metropolitan Asylums hospitals at the end of last month, against 134, 100, and 103 at the end of the three preceding months; the weekly admissions averaged 13, against 18, 14, and 16 in the three preceding months. The greatest proportional prevalence of erysipelas was recorded last month in Stoke Newington, Finsbury, Bethnal Green, Battersea, Camberwell, and Deptford. The 20 cases of puerperal fever notified during the month included five in Wandsworth and two each in Fulham, Islington, and Battersea. Of the 15 cases notified as cerebro-spinal fever two belonged to St. Pancras, two to Bethnal Green, two to Stepney, two to Poplar, and one each to the City of Westminster, Hackney, Finsbury, Shoreditch, Southwark, Bermondsey, and Woolwich.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the four weeks ending March 30th the deaths of 6172 persons belonging to London were registered, equal to an annual rate of 16·9 per 1000; in the three preceding months the rates had been 18·3, 19·9, and 18·4 per 1000. The death-rates last month ranged from 12·4 in Wandsworth, 12·9 in Hampstead, 13·2 in Lewisham, 14·4 in Woolwich, and 14·8 in Fulham, in Stoke Newington, and in the City of London, to 20·1 in Holborn, 20·2 in Finsbury, 20·9 in Southwark, 22·5 in Bermondsey, and 23·0 in Shoreditch. The 6172 deaths from all causes in London last month included 536 which were referred to the principal infectious diseases; of these, 198 resulted from measles, 29 from scarlet fever, 59 from diphtheria, 187 from whooping-cough, 12 from enteric fever, one from ill-defined pyrexia, and 50 from diarrhœa. In addition to these 536 deaths four fatal cases of cerebro-spinal fever, belonging respectively to Hackney, Shoreditch, Southwark, and Deptford, were registered during the month. No death from any of the principal infectious diseases was recorded in the City of London; among the various metropolitan boroughs they caused the lowest death-rates in Chelsea, the City of Westminster, St. Marylebone, and St. Pancras; and the highest rates in Shoreditch, Bethnal Green, Poplar, Southwark, Bermondsey, Camberwell, and Greenwich. The 198 deaths from measles were 50 below the corrected average number in the corresponding period of the five preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Shoreditch, Bethnal Green, Bermondsey, Camberwell, Deptford, Greenwich, and Woolwich. The 29 deaths from scarlet fever showed a slight decline from the corrected average number; the greatest proportional mortality from this disease occurred in Paddington, St. Pancras, Bethnal Green, Poplar, and Southwark. The 59 fatal cases of diphtheria were 11 fewer than the average in the corresponding period of the five preceding years; the highest death-rates from this disease last month were recorded in Hammersmith, Shoreditch, Bethnal Green, Poplar, and Battersea. The 187 fatal cases of whooping-cough were almost equal to the corrected average number; this disease was proportionally most fatal in Paddington, Kensington, Holborn, Shoreditch, Southwark, and Lewisham. The 13 deaths referred to "fever" were four below the corrected average; of these, three belonged to Stepney, two to Islington, two to Lambeth, and one each to Paddington, the City of Westminster, Hackney, Holborn, Shoreditch, and Deptford. The 50 fatal cases of diarrhœa showed a slight decline from the corrected average; this disease showed the greatest proportional mortality in Kensington, Hackney, Finsbury, Stepney, Poplar, Southwark, and Battersea. In conclusion, it may be stated that the aggregate mortality from the principal infectious diseases in London last month was nearly 20 per cent. below the average.

Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 125 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, St. Pancras, Stoke Newington, Holborn, Poplar, Greenwich, and Lewisham; and the highest rates in Hammersmith, Chelsea, the City of London, Shoreditch, Stepney, Bermondsey, and Camberwell.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: J. L. Barrington to the *Espiegle*, additional, for Dartmouth College; J. J. Dennis to Haulbowline Hospital; J. E. Coad to the *Drake*; and W. A. Whitelegge to the *Essex*, on recommissioning. Staff Surgeons: F. H. Nimmo to the *Essex*, on recommissioning; W. J. Codrington to Haslar Hospital; H. L. Norris to the *Isis*; P. K. Nix to the *Virid*; R. J. MacKeown to the *President*, for three months' course at West London Hospital; and F. A. Capps to the *Black Prince*. Surgeons: N. H. Harris to the *Drake*, on recommissioning; and R. F. MacMahon to the *Pembroke*.

ROYAL ARMY MEDICAL CORPS.

Major G. S. McLoughlin, D.S.O., has left Woolwich and Major J. Ritchie has joined at Woolwich. Major G. A. T Bray from India has been appointed to the Eastern Command. Captain M. P. Corkery has arrived in the London District for duty.

THE VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

Mr. Haldane, Secretary of State for War, has accepted the invitation of Surgeon-Colonel P. B. Giles, A.M.R., and officers to be present at the annual dinner of the school, which will be held at the Trocadéro Restaurant, Piccadilly-circus, on Friday, May 10th, at 7.45 P.M. Among those who have also accepted the invitation to be present are General Lord Methuen, G.C.B., General Officer Commanding-in-Chief, Eastern Command; Surgeon-General Sir A. H. Keogh, K.C.B., Director-General of the Army Medical Service; Colonel A. T. Sloggett, C.M.G., R.A.M.C.; Colonel G. F. Ellison, C.B., the War Office; Lieutenant-Colonel M. Russell, the War Office; Colonel J. Cantlie, London Companies, R.A.M.C. Volunteers; and Mr. A. W. Mayo Robson. Past and present members of the school can obtain tickets by applying to the mess president, Surgeon-Major E. M. Callender, A.M.R., 47, Connaught-square, London, W.

MR. HALDANE'S SCHEME.

The *Broad Arrow*, in its issue of April 13th, commenting on Mr. Haldane's scheme and its possible effect upon the Army Medical Service, says: "We find that at the commencement of a campaign it will be 800 officers below its strength. Medical officers are not only killed by bullets and shrapnel, but are subject to a high percentage of casualties from sickness and other causes. It is sheer madness, as we have pointed out before, to send an army into the field without a sufficient proportion of medical officers and men. It is possible sometimes for a general in the field, by insisting on great economy in the employment of officers on the staff and line of communications, to ease the strain on the regimental officers, leaving these undisturbed at their own particular duties. But no such self-sacrifice will provide medical officers. Better to save the general officer, who should be spared routine work, the task of rearranging the details of staffs by keeping these down to reasonable limits at starting. The deficiency in medical officers cannot be filled up at the front. Civil surgeons may indeed be employed; in South Africa they gave great assistance, but this is a doubtful way of filling up gaps. The best way would be to create a Reserve of Medical Officers. In any case this most serious weakness of our field army demands immediate attention. The deficit of non-commissioned officers and men in the Royal Army Medical Corps on mobilisation is also enormous, amounting to 4522. Heaven preserve the sick and wounded from the attentions of hastily appointed and untrained hospital orderlies. ..... The shortage of officers (in the Medical Service) must be brought to the notice of the Government and the nation, for to send our soldiers on service without provision for the sick and wounded is conduct proper to an Attila or an Alaric, but altogether too inhuman and expensive for a nation holding our rank in the community of the world."

THE COLONIAL CONFERENCE AND AN IMPERIAL MEDICAL SERVICE.

The conference of the Colonial Premiers has begun. We think that it will be universally recognised that nothing could have been happier than the terms of the telegraphic message with which the King greeted the first meeting of the Colonial Conference and expressed his opinion of the weighty nature and interest of the questions about to be deliberated upon, not merely to the Colonies but to the British Empire at large. And, speaking generally, the opening address of the Prime Minister, Sir Henry Campbell-Bannerman, and the speeches which followed on the part of the representatives of the Colonies, were worthy of the occasion, the importance of which it would not be easy to exaggerate. The closer union of the colonies with this country can only tend to the strengthening and consolidation of the Empire, and should it be followed by the creation of an Imperial Council a way will be opened out, as we said last week, to the possible unification of the colonial forces, together with their medical services, on such a scale as should suffice to meet all the needs of imperial defence, including an ample medical reserve.

ROYAL HUMANE SOCIETY'S MEDAL.

At the monthly meeting of the Royal Humane Society on April 15th a special gold medal was awarded to Prince Henry of the Netherlands in recognition of his humane action at the wreck of the *Berlin* at the Hook of Holland on Feb. 21st. A medal was also awarded to Private Thomas Kerr, R.A.M.C., for rescuing two comrades from the Vaal river, near Standerton, Transvaal, on Jan. 7th.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—There was a large attendance at the council schools on March 30th, when the workpeople and officials of the Melingriffith Tin Works, Whitchurch, presented Mr. Frederick William Evans, M.D., C.M. Aberd., M.R.C.S. Eng., L.S.A., J.P., of Cardiff, with a handsome gold English lever watch, as a mark of respect and esteem on the occasion of his resigning the post of surgeon to the works. By the resignation of Dr. Evans a long family connexion with the Melingriffith works, which has lasted nearly 100 years, is brought to a close, for the grandfather of Dr. Evans was also surgeon there for a number of years.—At the St. John's parish room, Clifton, on April 6th, Mr. Ephraim Frederick Hastings Burroughs, L.R.C.S. Irel., L.A.H. Dub., was presented with a silver salver and a framed photograph of himself by the members of the Rational Association Friendly Society as a mark of their respect and esteem.

Correspondence.

"Audi alteram partem."

THE USE OF ALCOHOLIC BEVERAGES.

To the Editors of THE LANCET.

SIRS,—That the moderate expression of opinion upon the teetotal question, which you printed a few weeks ago, should have caused so much excitement amongst a certain class of dietarians has amazed me. I had no other thought than that it would receive a quiet burial in your columns; but ever since its appearance I have been annoyed by would be interviewers, and by letters and newspaper cuttings on the subject. And this has made two things clear to me: first, that it was high time that some check were given to the flowing tide of teetotal intolerance and immoderation; and, second, that the profession of abstinence from "strong drink" is apt to go hand in hand with intemperance of language.

The professors of teetotalism have been allowed to have things too much their own way. Few people have thought it worth while to stand up against them to speak words of commonsense—with the risk of having base, malicious, or ungenerous motives imputed to them. Thus, they have become a bit "masterful." And if things went on much further we might see strange and unedifying sights in our free country. Thus, under the prayerful guidance of some emboldened, teetotal, suffragettish matron, a crowd of enthusiastic men and women might possibly be seen upon their knees round three sides of the Café Royal, refusing to "move on" until the manager had emptied his last bottle of wine into the gutter. Intolerance of this sort is already known in America in connexion with the forced spreading of the gospel of teetotalism—some of the apostles of which, by the by, might be deemed no unworthy descendants of those well-meaning but impatient persons who lit the martyr-fires of Smithfield.

The public have, unfortunately, been led to misunderstand the position which, at the present time, the medical profession holds with regard to the, so-called, temperance question. And this is partly our own fault. The rank and file of our profession are, one and all, in favour of temperance. But when one of its leaders has accepted an invitation to speak upon what is known as the temperance platform, he has been too apt to be carried away by the *aura* of the meeting and by his own eloquence, and to say things which, in his calmer moments, he would deem it right and proper—his duty, even—to modify. But what he has said has been taken down in writing, and the sight of it in the next day's paper has been, I should hope, enough to spoil his breakfast. No one did more harm in bringing about this misunderstanding than a certain warm-hearted, eloquent (late) President of the Royal College of Physicians. But other members of our profession are still doing it, though in a smaller way.

In those papers and cuttings which have lately been sent to me (either with a view to affront me or to make me change my mind—perhaps both) the names of several illustrious professional friends are offensively hurled at me—men who have written and spoken, and rightly so, in the cause of *temperance;* but, to my certain knowledge, almost every one of them is, like myself, a moderate "drinker," and would smile at the idea of being classed amongst the teetotalers, or of being thought a preacher of *total abstinence*. The fact, then, of the existence of this misunderstanding fully justified some pronouncement being made, and it should also render the leaders of our profession, who are moderate drinkers, more guarded in their language when they are upon the "temperance" platform. If a man wishes to be a total abstainer from beer, wine, and spirits by all means let him. And if he wishes to notify that fact to others let him, if he will, instead of putting a miserable scrap of blue ribbon in his button-hole, make a broad, blue band of ribbon for his forehead; but let him at the same time try to be fair in his thoughts and temperate in his words, and to allow to others that freedom of action which he claims for himself.

One may notice that not a few of the "total abstainers" are great eaters of meat, and this habit for town dwellers, or for such as are leading a studious life, is apt to be very harmful. Far better for them would it be to drink a little wine or beer at dinner, and to give up some of the other

foods—for wine and beer are undoubtedly foods. The over-zealous teetotalers by their language on the platform, and in the press, have already forced wrong and misleading significations into several of our words. Thus, they speak of a man who drinks wine or beer at meals as one given to "alcohol." I assert that no sane person (except in the mind of a wrong-thinking teetotaler) ever drinks *alcohol*. I have never tasted it, and would as soon think of drinking paraffin or naphtha.

Another word which they have altered to suit their narrowed taste is "temperance." I claim that every man who signed that modest declaration is not only a teacher, but a practiser of *temperance*. "No," say they, "the man of temperance is the 'total abstainer.'" And I feel sure that their amended version of the Scriptures will show that when Paul was reasoning of "temperance" he was actually giving Felix a teetotal address. For these well-intentioned persons the word *temperance* (moderation) has no meaning: a man must be as they are, or else he must be wilfully hurrying on to a drunkard's grave. This is childish and sad; and when it is repeated over and over again it becomes vexing and offensive. And as regards the Apostle's friendly prescription to Timothy, it will probably be shown that the "little wine" which he recommended was not *wine* as we know it, but some weird teetotal drink which would most likely have left him and his stomach chilled, distended, and unhappy. (It is a strange and suggestive fact that so many of these drinks are in name and outward guise made as much as possible like those which the ordinary man takes. And some of them are by no means free from alcohol.)

In connexion with the excesses of the teetotal movement, the late Archbishop of York said that he "would rather see England free than sober." It was a "hard saying," and only a strong man in his position would have dared to say it. It caused a terrible shock amongst those for whom it was meant as a warning against intemperance in speech and writing; but the more one thinks over it the more right and sensible it becomes. Some of us have seen the effect of the teetotal craze in another country, driving men to drink water at their meals in public and spirits in the saloons afterwards. What healthy-minded person among us would not rather have English men and women free—free to drink what they like at meals, yes, and even between meals if they thought it would do them good—than driven under the lash of a teetotal Mrs. Grundy?

I am, Sirs, yours faithfully,

April 16th, 1907. EDMUND OWEN.

To the Editors of THE LANCET.

SIRS,—What first strikes us on reading the manifesto by the 16 medical men who signed it on the use of alcoholic beverages is, why was such a document given to the world at this particular psychological moment? It may be surmised that it was meant as a reply to some particular declaration by total abstainers to a contrary effect. If so, it amounts to assertion merely and is no proper answer in so far as argument is not even attempted. If, on the contrary, the pronouncement be the mere expression of the pious opinions of 16 distinguished doctors apropos of nothing, the form of the document does not, one feels sure, really represent the reasoned views of leading clinical teachers of the great body of medical practitioners. We should be very sorry for our learned profession if such one-sided opinions in favour of the habitual use of alcoholic liquors, expressed in such slipshod language, were taken by the outside public as the general verdict of physicians and surgeons on their value in medical practice. If personal evidence be worth anything (and I do not claim it to be worth much) I may be allowed, perhaps, to state *per contra* my own modest experience, extending now over half a century. I can honestly say I have never met with a single patient who in his ordinary health needed to make use of any alcoholic beverage whatever. Nay, I believe, and have always told those who have consulted me, that they would be safer without it; while freely granting, within proper limits, that the use or non-use of alcohol, in moderate quantities and under proper safeguards, was a question for themselves individually and not one for their medical adviser to decide for them.

And here, as a modicum of actual facts is worth more than a load of theorising, I may venture to give the broad results of two experiments I was in a position to make on the effect of stopping all "stimulants." The first was my experience as a surgeon for several years of a fairly large gaol. Everyone who considers the class of persons admitted into a prison must see that at least 50 per cent. habitually use alcohol in some form. The craving for their usual tipple was intense and in some cases the condition of, let us call it, *weakness* was so marked that I felt alarmed as to what might happen. But I never once gave in and to my relief after a little time every single prisoner began to take his food well and to mend steadily.

The second experiment was this, and here I must guard myself by confessing that I do not claim, and indeed I have not myself acted upon, the result as conclusive. Many years ago I was in charge of the fever wards of a small hospital. There was little choice of nurses for this kind of duty. The old woman in charge of the patients, I had reason to believe, "drank" when she had the chance, and what better opportunity could be presented than to make use of the stimulants ordered for her patients! I took the bull by the horns and for a whole year treated all the cases of fever—mainly typhoid—without once ordering alcohol. I could not say the results were different from what I had been accustomed to when prescribing stimulants in such cases, the mortality in typhoid being well under 10 per cent.—it must be allowed a fairly gratifying proportion of cures.

I am, Sirs, yours faithfully,

Dingwall, April 13th, 1907. WILLIAM BRUCE, M.D. Aberd.

To the Editors of THE LANCET.

SIRS,—I was glad to see the manifesto on the medicinal and dietetic value of alcoholic beverages in your issue of March 30th, for I know that members of the medical profession have been justly indignant at the way certain persons more or less distinguished have misrepresented the attitude of the profession towards the subject. It is an abuse of our high privileges to espouse the cause of factions and extremists and allow any of our names to be quoted as of those who are the champions of one-sided and fanatical ideas, and, if we must acquire prejudices, least of all should we give prejudiced ideas to the world as the latest findings of scientific investigation. By all means let us preach self-control, but the so-called temperance platform is not usually the place to find it.—I am, Sirs, yours faithfully,

London, W., April 2nd, 1907. A. W. FULLER, M.D.

To the Editors of THE LANCET.

SIRS,—The statements of the 16 eminent signatories to the declaration on the use of alcohol in health and disease are highly important and profoundly impressive. Unfortunately, in this too sceptical age even the *ex cathedrâ* utterances of the most distinguished authorities are apt to be closely scrutinised and vague generalities as to "the universal belief of civilised mankind" may by themselves fail to carry conviction. Would, therefore, these gentlemen kindly add to the benefits they have already conferred upon mankind and science in general, and upon the Chancellor of the Exchequer and those concerned in the sale of alcoholic beverages in particular, by condescending to tell their more ignorant professional brethren, and through them the general public, in what ways exactly alcohol is of benefit to healthy people, at what age the consumption of this inestimable boon should be commenced, and how "moderation" in its use is to be precisely defined.

The great stimulus which the declaration will doubtless impart to the consumption of alcohol renders it particularly important that medical men should be able to give authoritative advice in regard to the last two questions. Moreover, many medical men who up to now have been endeavouring to inculcate temperance principles on their families and patients will doubtless in the future teach the necessity for moderate drinking, and it is highly desirable in the interests of the spread of truth that they should be able to give sound and convincing reasons for the change in their belief to those benighted folk to whom the names and opinions of the 16 signatories may possibly not be sufficient.

To attempt to convince such fanatics as life-long teetotallers is doubtless well-nigh hopeless, but there are not a few apparently intelligent individuals who, persuaded unfortunately by the very specious and definite arguments put forth as to the mental and physical advantages of total abstinence, sometimes even by medical men almost as well known as those who have signed the present manifesto, have entirely given up the regular and oft-times apparently very moderate use of alcohol, and who, strange to say, declare they are no worse or even better for the change (such tricks can the imagination play!). Many such men would

possibly be amenable to a combination of authority and reason. A clear and convincing statement, therefore, of the advantages of alcohol as a habitual article of diet, and an exposure of the fallacies of the arguments and statistics advanced on the other side, would place publicans and patriots alike under a further debt of gratitude to those gentlemen who, from a stern sense of public duty, have gone out of their way to direct attention to the blessed potentialities of the regular use of alcohol, advantages which every day observation and experience, and the alarming decline in the national drink bill, show to be so commonly overlooked by the great mass of the population.

I am, Sirs, yours faithfully,

April 6th, 1907. J. WALTER CARR.

To the Editors of THE LANCET.

SIRS,—The letter of Sir James Barr in THE LANCET of April 6th requires some comment. In the first place the very fault he complains of in the pronunciamento signed by 16 eminent members of the profession—i.e., of posing as Sir Oracle—is the exact rôle he himself assumes when individually he criticises their action; only 16 times more so. To charge a man of the eminence in his profession such as Mr. Jonathan Hutchinson has attained to, a man of world-wide repute and universal respect, with being a "blatant" advertiser and to restrict his claims to our regard to showing that alcohol is an excellent mouth-wash in cases of operation on the tongue, is evidence of such a gross want of appreciation of one of our most revered and accomplished medical *confrères* that one can only excuse it by assuming an ignorance on Sir James Barr's part of the excellent and abiding work indissolubly united to the name of Jonathan Hutchinson that is equally culpable and astounding.

The manifesto so seasonably issued by the 16 eminent practitioners is merely a temperate expression of opinion of some highly respected and leading members of the profession in reply to the constantly increasing vituperative and misleading statements of blatant exponents of extreme teetotal views, and as such will have the effect it was intended to have—to let the people at large know what is the unbiased and general view of the medical faculty as to the moderate use of alcohol as a medicine and a beverage. Of one thing I am quite certain—that the vast bulk of the opinion of the medical profession is in favour of the manifesto, and I feel quite sure that the effort of Sir James Barr to neutralise that effect, even though written under the influence of two glasses of champagne, will prove of no avail.

I am, Sirs, yours faithfully,

Preston, April 8th, 1907. JAMES A. RIGBY.

To the Editors of THE LANCET.

SIRS,—Although I hold a very humble position in the profession allow me to say that I consider the manifesto on alcohol just issued to be both injudicious and uncalled for. The result cannot be otherwise than bad; besides, there is nothing in it that adds to our stock of knowledge.

I am, Sirs, yours faithfully,

Bexhill-on-Sea, April 6th, 1907. F. P. ATKINSON.

To the Editors of THE LANCET.

SIRS,—It is a great pity that such words as "pernicious" and "impertinence" should be used in discussing a purely scientific matter, and I cannot help feeling that Sir James Barr's letter is far from being marked by the urbanity and good taste which one would naturally expect from a knight bachelor of Mr. Balfour's creation. After all, the manifesto in question simply puts forward the moderate as against the intemperate view on the subject of alcohol, and it undoubtedly expresses the opinions of a great number of medical men who are not extremists.

I am, Sirs, yours faithfully,

April 9th, 1907. A MODEST PRACTITIONER.

THE TREATMENT OF ACUTE FAILURE OF THE HEART.

To the Editors of THE LANCET.

SIRS,—I read with much interest and pleasure Dr. C. Bolton's paper on this subject in THE LANCET of March 30th, p. 870, particularly that part of it concerning diphtheria. His attitude towards alcohol and strychnine and his insistence upon the importance of rest meet with my most cordial support, his views being substantially the same as those I have expressed elsewhere.[1] The paper, however, contains certain statements which should not, I think, be allowed to pass unchallenged. After rightly emphasising the importance of the early administration of antitoxin he says: "If antitoxin is administered on the first day of the disease, a circumstance only possible when the patient contracts the disease in a hospital, the mortality is only ½ per cent. ..... After the fifth day antitoxin is unable to produce any reduction of the mortality." Granted that diphtheria is often insidious in its onset, especially in children, in whom it may be mistaken for a cold or some other trifling affection, the prodromal symptoms are often sufficiently obtrusive to make the parents seek medical advice, especially if a recent case in the family or immediate neighbourhood has caused them to be on the alert.

It is hardly fair to the general practitioner to suppose that he should always fail to recognise diphtheria on the first day, or that having formed a correct diagnosis he should not at once insure appropriate treatment, either by giving antitoxin himself or by sending the case at once to hospital. It is true that first-day cases form a comparatively small percentage of the total admissions to fever hospitals, but one has only to refer to the statistics of Dr. J. MacCombie[2] to see that during the last nine years as many as 214 cases have been admitted to the Brook Hospital on the first day of disease, all of which recovered. My own experience is corroborative. Out of 1200 consecutive cases that have been under my care in the course of the last four years, in 44 the clinical evidence confirmed the history of the disease having begun on the day of admission. No deaths occurred in these 44 cases, and in only three was there any paralysis, in each case of a mild character and short duration. In the remaining 1156 there were 268 paralysis cases, 98 of which were severe.[3]

In his remarks on the inefficiency of antitoxin after the fifth day of disease Dr. Bolton expresses an opinion which appears to be widespread, but which is, I think, erroneous, and if carried to its logical conclusion—viz., abstention from the administration of antitoxin in every case of diphtheria later than the fifth day—is highly pernicious. In my own cases no less than 169, or 14·08 per cent., were admitted after the fifth day of disease. With the exception of nine very mild cases, all in whom membrane was present received antitoxin. Of these 19 died, a mortality of 11·2 per cent. Would the death-rate have been so low had antitoxin been withheld? Surely not. In the pre-antitoxin era,[4] even when the cases were brought under treatment at the very onset of the disease, the mortality was never less than 28·8 per cent., and not infrequently rose to 50 per cent. or more. Since age is an important factor in the prognosis of diphtheria it is well to say that the majority of my cases were children: 68 were between the ages of 0 and 5 years (14 deaths), 73 between 5 and 10 years (4 deaths), and 28 were 10 years old and over (1 death). The comparatively low death-rate cannot, therefore, be explained by saying that the patients were adults in whom the mortality of diphtheria is notoriously low. Nor can the low mortality be attributed to the mildness of the cases, as will be seen from the following classification: 17 were very severe (10 deaths); 51 were severe (9 deaths); among the remainder, which were classified respectively as "moderately severe" (17 cases), "moderate" (35), "mild" (40), and "very mild" (9), no deaths occurred. These figures also show that a late case is not synonymous with a severe case, every form of the disease being represented. It is important to realise that the evolution of diphtheria may be either rapid and malignant, so that even large doses of antitoxin given on the second day of the disease may not avert a fatal issue—the mortality among my second day cases was 3·06 per cent.—or comparatively slow and benign, so that the disease which may have been in progress for a week yields rapidly to a small dose of antitoxin, no subsequent complications ensuing. Though fully substantiating Dr. Bolton's remarks on the importance of the early administration of antitoxin, I would urge that we should be guided by clinical rather than chronological considerations in our treatment of diphtheria. The presence of membrane in the throat, however late the disease, is an indication for serotherapy. I have seen so

[1] Practitioner, vol. ii., 1904, p. 736 et seq.
[2] Brit. Med. Jour., vol. ii., 1906, p. 1759. Cf. Metropolitan Asylums Board's Reports, 1898–1905.
[3] Cf. Practitioner, loc. cit., p. 612 et seq.
[4] Baginsky: Diphthérie, p. 312. Cf. Metropolitan Asylums Board's Reports prior to 1894.

many severe late cases, some of which I have recorded elsewhere,[5] in which my original gloomy prognosis has been happily falsified, as to feel inclined to say of diphtheria as Ricord did of syphilis: "As regards recovery everything is possible, sometimes even the impossible."

I am, Sirs, yours faithfully,

J. D. ROLLESTON.

Grove Fever Hospital, S.W., March 30th, 1907.

ON THE CONDITION OF THE BLOOD-VESSELS DURING SHOCK.

To the Editors of THE LANCET.

SIRS,—Professor Wenckebach's thoughtful letter in THE LANCET of April 13th, p. 1040, is very welcome to me because the case he records supports a part of the evidence, in favour of my view, which appears to have been observed very rarely. I have seen definite cases, although not many, in which a small or imperceptible radial pulse was associated with a powerful, slow heart action and a full, forcible beat in the carotids. But I first and most frequently noted these phenomena in patients who were suffering from pseudo-ileus after abdominal operations—a condition that practically ceased to exist when the routine use of opium was discontinued. I therefore attach much importance to the case now brought forward and wish to emphasise the fact that its vascular conditions were due, beyond all question, to the action of digitalis and not to a paralysis. I have seen exactly the same vascular phenomena in cases of well-developed, uncomplicated surgical shock, and I submit that this evidence amounts to a proof that the vessels are actively contracted in that state. I am also greatly indebted to Professor Wenckebach for showing with such admirable clearness in the second part of his letter how it is at least possible to believe that the arteries may be contracted right up to the aorta and yet the blood pressure may be lowered in them. This proposition seems to be one of the greatest stumbling blocks to the acceptance of the theory which I advocate, but Professor Wenckebach finds in it no insuperable difficulty and no confusion of thought. When this question is closely investigated the greatest difficulty which I find is to understand how Dr. Crile could formulate his theory, with all his brilliant experimental work before him.

I am not alone in this view. Dr. Eugene Boise of Grand Rapids, Mich., U.S.A., has kindly sent me a paper[1] in which he criticises Dr. Crile's teaching on similar lines to those which I followed, and he brings forward, as I did, incontrovertible evidence that Dr. Crile's experiments do not support Dr. Crile's conclusions. On the contrary, Dr. Boise holds that these experiments "show that there is an excessive irritation of both the vaso-motor and cardiac centres whereby the arteries and heart are both almost spasmodically contracted." I have been, and am, inclined to believe that the heart is affected secondarily, but this is a minor point. Except in this detail I fully agree with Dr. Boise and I have letters from others indicating more or less emphatically that the writers are of the same opinion.

Regarding Dr. Leonard Williams's letter, I will endeavour to make my meaning clear. The argument in which he invited me to find a fallacy began with the assertion that "the sphygmanometer shows that the blood pressure in shock is invariably subnormal."[2] This statement is not of universal application because when the blood pressure is estimated in the splenic vein it is found to be raised. The basis of argument is therefore fallacious because a partially true statement is assumed to be universally so. My authority for the assertion that the pressure rises in the splenic vein is Dr. G. W. Crile[3] whose views I understand that Dr. Williams wishes to sustain.

As to the second fallacy, I have repeatedly urged that the blood-vessels are not paralysed in the splanchnic area during shock, but the fact remains that in Dr. Williams's test argument there is nothing to prevent me from maintaining that these vessels, and these vessels alone, are paralysed and dilated in that state. Dr. Williams agrees with me that they are not, and the fallacy lies in the fact that he did not make this clear in his argument. In order to prove the existence of a general vaso-dilatation Dr. Williams, in explanation of his argument, assumes that the medulla becomes exhausted. This is the question at issue and the assumption made by Dr. Williams, but not upheld by any evidence, is an essential part of the theory which he supports. I have already fully discussed the other questions raised.

I am, Sirs, yours faithfully,

Portman-street, W., April 13th, 1907. JOHN D. MALCOLM.

[5] Practitioner, loc. cit., pp. 808 and 821. Review of Neurology, 1905, p. 722. British Journal of Children's Diseases, 1906, p. 541.

[1] American Journal of Obstetrics, vol. lv., No. 1.

[2] THE LANCET, March 23rd, 1907, p. 836.

[3] Surgical Shock, p. 138.

THE SACCULAR THEORY OF HERNIA.

To the Editors of THE LANCET.

SIRS,—Dr. Arthur Keith in THE LANCET of March 23rd, replying to a recent communication on the Saccular Theory of Hernia by Mr. R. Hamilton Russell, expresses a desire that those who uphold this theory will explain "why it is since all hernia sacs are pre-formed that the inguinal sacs fill so readily in the first few years of life while the femoral sacs do not fill until puberty is reached?"

Granted the existence of a patent funicular process in the inguinal region, I would suggest that the occurrence or not of a hernia largely depends upon two factors—the size of the opening at the internal abdominal ring and the strength of the muscles guarding it. When the processus vaginalis testis is patent, provided the opening at the internal abdominal ring is small and the muscles guarding it are powerful, then the probabilities of a hernia occurring are slight. If, on the other hand, the internal opening is large and the muscles are weak the probability of a hernia occurring is considerable. The frequent occurrence of inguinal hernia during infancy would thus be explained. The frequency with which inguinal hernia first appears about the age of puberty I would account for by the increased amount of exercise usually indulged in at this period, and the muscles, which under ordinary conditions are able to guard the internal opening, are suddenly overtaxed and the bowel enters the inguinal canal. In the case of a hernia appearing later in life, it may be even in old age, the same reasoning would hold good. Though the processus vaginalis testis has been to some extent patent since birth no hernia has appeared because the opening at the internal abdominal ring was never large and the inguinal muscles well able to guard it, but with declining years the weakened muscles at some critical moment fail and the bowel or omentum passes through.

This view of the etiology of inguinal hernia explains why it is persons engaged in hard manual labour are particularly liable to develop a hernia. Cases have been recorded in which an inguinal hernia has for the first time developed during a long illness, and under these circumstances it appears to me far more reasonable to explain such an occurrence in the way I have suggested rather than to suppose the bowel to have forced the parietal peritoneum in front of it.

As to femoral hernia, the frequency with which peritoneal diverticula (quite apart from hernia) were found in this region in 200 bodies examined was surprising and difficult to explain satisfactorily. They invariably occupied a position corresponding exactly to that of the sac of a femoral hernia and in shape closely resembled the inguinal pouches, which would make it appear more probable that they were produced by some force pulling the peritoneum outwards, rather than by the bowel pushing the peritoneum in front of it.

With all due deference to Dr. Keith I still believe in the developmental origin of these femoral diverticula and would remind him of certain facts which support this view: 1. The frequency with which they are found, both in male and female subjects. 2. That in so many instances they are bilateral and associated with inguinal congenital sacs—e.g., Case 9. 3. Their shape which very closely resembles that of the inguinal diverticula. 4. Such a case as No. 45, where in a girl of seven years of age a right and left femoral pouch existed, which at this age could hardly have been acquired. 5. That femoral hernia is known to occur during childhood. 6. That these peritoneal diverticula invariably occupy the same position as the sac of a femoral hernia.

These femoral pouches are either all of congenital origin or all have been acquired. If they are all of congenital origin and occur with such frequency in the exact position which the sac of a femoral hernia normally occupies, why suppose the sac of a femoral hernia has ever been acquired? I would remind those who hold to the orthodox teaching that if their view is correct then these pouches must have been acquired by the bowel pushing the peritoneum in front of it. Consequently we are asked to believe that amongst 47 persons

no less than 58 femoral herniæ must at one time have existed and that quite unknown to the persons concerned. It is well known that femoral hernia occurs with far greater frequency in women than in men, and granted a pre-formed femoral sac occurs with equal frequency in both sexes I would suggest that a hernia is more likely to develop in women mainly for two reasons: 1. Because in females the lateral expansion of the pelvis which takes place about puberty would tend to widen the mouth of a peritoneal diverticulum in the femoral region. 2. On account of increased pelvic pressure during pregnancy.

These suggestions receive some support from the fact that femoral hernia appears with greatest frequency during the child-bearing period. I gladly take this opportunity of thanking Dr. Nathan Raw for permitting me to make use of the investigations made in the post-mortem room of the Mill-road Infirmary, for the information obtained is, I believe, strong evidence in favour of the saccular theory of hernia.

I am, Sirs, yours faithfully,

Liverpool, March 25th, 1907. R. W. MURRAY.

Potential Hernial Sacs in 200 Consecutive Post-mortem Examinations made upon Persons in whom during Life there was no History or Evidence of Hernia.

No.	Sex.	Age.	Potential hernial sac.
1	Male.	48	Double inguinal and right femoral.
2	,,	61	Double inguinal.
3	,,	46	Left femoral.
4	,,	57	Right femoral.
5	,,	39	Right inguinal (contained omentum).
6	,,	55	Left inguinal (contained omentum).
7	,,	42	Left femoral.
8	,,	29	Right femoral.
9	,,	44	Double inguinal and double femoral.
10	,,	30	Right and left femoral.
11	,,	63	,,
12	,,	62	Right femoral.
13	,,	32	Left inguinal.
14	,,	45	Right femoral.
15	,,	60	,,
16	,,	61	Right and left femoral.
17	,,	44	Right femoral.
18	,,	64	,,
19	,,	33	Right and left femoral.
20	,,	54	Right femoral.
21	,,	22	Right and left inguinal.
22	,,	63	Right femoral.
23	,,	44	Right and left femoral (small opening).
24	,,	64	,,
25	,,	28	Right and left femoral.
26	,,	31	Right femoral.
27	,,	44	Left femoral (small opening).
28	,,	24	Right femoral.
29	,,	56	Right and left femoral and umbilical.
30	,,	55	Left femoral.
31	Female.	40	Right femoral.
32	,,	14	Right and left femoral.
33	,,	62	Left femoral.
34	,,	54	Right femoral.
35	,,	33	,,
36	,,	60	Right and left femoral.
37	,,	47	Left femoral (contained omentum).
38	,,	56	Umbilical contained omentum).
39	,,	30	Left femoral (small opening).
40	,,	43	Right femoral.
41	,,	30	,,
42	,,	37	Left inguinal.
43	,,	44	Right femoral.
44	,,	62	,,
45	,,	7	Right and left femoral (small opening).
46	,,	68	Right femoral and left inguinal.
47	,,	18	Left femoral.

Case 46 had also a large umbilical hernia. In Case 29 the umbilical sac contained a small piece of omentum.

These cases were examined at Mill-road Infirmary; list completed June 15th.

200 bodies examined.

In 47 bodies 68 peritoneal diverticula were found. The average age of these 47 persons was about 44 years. 30 were males and 17 were females.

In 16 instances more than one diverticulum was present.

In 30 males the average age was 47½ years; in 17 females it was 40 years. The youngest person was seven years of age, the oldest 68.

BLOOD CULTURE IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—Dr. T. J. Horder's exceptional experience in blood culture makes his record of the cultivation of the typhoid bacillus without dilution of high value. I think his case compares and contrasts instructively with ours, especially so in this point. My experience is that growth occurs of certain organisms more readily in blood well diluted than in high concentration, when planted simultaneously from an infected source. In this I agree with Libman,[1] Buxton,[2] McCrae,[3] Castellani,[4] and others; but streptococci, staphylococci, and pneumococci seem to do better in concentrated blood.

The importance of the nutritive medium on the growth of bacteria is perhaps hardly recognised at its true value; and Dr. Horder does well to draw attention to it. The effect of soil on their characters is seen in Eyre's work on the pneumococcus, in Gordon's on the meningococcus, m. catarrhalis and streptococcus glomeratus; in the observations of Benham, Nash, and myself on diphtheroid bacilli; of Foulerton on "yeasts" in angina; of Wilson on a "meningeal" diplococcus, pleomorphic on various media; of Thomson on a Gram-negative meningococcus, which assumed a pneumococcus Gram-staining form on serum agar; of alteration of virulence after "passage" (contamination being excluded as a source of fallacy). The observations of Heubner, Hutmel, and Wilson point to the fact that the Gram staining properties of intracellular meningococci vary and that there is a close association between them and diplococcus pneumoniæ.[5] Indeed, "variation" in bacteria (e.g., the giant forms of bacillus typhi, of diphtheria bacilli, of streptococci, &c., seen in old cultures and the extraordinary variation in the members of the colon group observed by Klotz) is so striking that I look to environment to explain the variation that leads animal cells to form neoplasms. It would be of interest to know if Dr. Horder's typhoid bacillus agglutinated with an immune serum, for it is clear that the typhoid bacillus and the cholera vibrio cannot be identified with certainty by culture. Savage, Lorrain Smith, and Klotz have found, moreover, in water-supplies bacilli which give a positive agglutination with typhoid-immune serum in over 100 per cent. dilutions and yet are not typhoid bacilli, and similar phenomena are observed by Rüffer in the cholera vibrio.

I am, Sirs, yours faithfully,

April 8th, 1907. F. G. BUSHNELL.

WHY NOT AN ASSOCIATION OF MEDICAL REFEREES?

To the Editors of THE LANCET.

SIRS,—The new "Workmen's Compensation Act," or so-called "Domestic Servant's Charter" will soon come into operation. It has caused widespread excitement, not to say consternation. It is foredoomed in its early life to give rise to frequent litigation. The insurance companies are scrambling over each other in their eagerness to obtain their share of the new business; new companies have been formed with similar intent; legal aid societies are coming into being; lawyers—especially of a certain class—are sharpening their quills; and referees are "bucking up" in anticipation of "the good time coming" after June.

May I suggest that this is the psychological moment for forming an Association of Medical Referees, either on an independent basis or, since amalgamation is the order of the day, in association with some other society, such as the "Life Assurance Medical Officers' Association"? Such an

[1] Reports of Mount Sinai Hospital, New York, and Johns Hopkins University.
[2] Reports of Bellevue Hospital and Loomis Laboratory, New York, quoting others.
[3] Reports of Royal Victoria Hospital, Montreal.
[4] Brit. Med. Jour., May, 1906, quoting Shottmüller and others.
[5] Journal of the American Medical Association, December, 1901.

association would tend to promote a higher ethical standard than now obtains, and it might be the means of influencing legislation in the direction of common honesty, common sense, and simple justice. However this may be, it would certainly not lack subjects for helpful discussion—e.g., the relation of hospital officials and patients in regard to the working of this and other Acts is ripe for discussion. This is likely to be an acute question ere long, and one can guess how the authors of this Act would treat the matter in their Babel house at Westminster. I leave my suggestion with my brother referees. I have little hope that it will bear fruit; for any course of action which tends towards the consolidation of our profession is ever most difficult to follow.

I am, Sirs, yours faithfully,

J. SCOTT BATTAMS,
Referee (for South London), Railway Passengers' Assurance Company.

Cedars-road, S.W., April 8th, 1907.

THE LOCALISATION OF GENERAL PARALYSIS OF THE INSANE.

To the Editors of THE LANCET.

SIRS,—This question has been incidentally raised as an outcome of Dr. G. H. Savage's very able Lumleian lectures on the Increase of Insanity recently delivered at the Royal College of Physicians of London by the following paragraph from Dr. Savage's first lecture: "In the last report general paralysis is stated to be increasing more rapidly in Edinburgh than in Glasgow, which seems hard to explain." Now my own experience may be of some interest to those curious in such a matter as this. Some seven-and-twenty years ago, after a long experience in the larger county and other asylums of the metropolis, where almost every other case admitted was one of general paralysis, it fell to my lot to take charge of the asylum for the three southern counties of Scotland, and also at the same time of the Crichton Royal Institution at Dumfries, and during the three or four subsequent years during which I filled the same offices I cannot say that I met with one case of general paralysis; on making inquiry on the matter at the great asylums of Edinburgh and Glasgow—i.e., Morningside and Gartnavel—I learned that general paralysis was by no means uncommon in either of them, Dumfries being the centre of a typically rural district, whilst Edinburgh and Glasgow were essentially urban, the former especially so. I was inclined to form the opinion then, which I have seen no reason to modify since, that general paralysis was a disease of large centres of population.

I can hardly lay claim to take shelter in ignorance as a reason for not finding out general paralysis in the southern counties of Scotland, for I had been very familiar with it in its many phases for years previously.

I am, Sirs, yours faithfully,

Malling Place, Kent, April 13th, 1907. JAMES ADAM.

THE DEVON AND EXETER MEDICAL BENEVOLENT SOCIETY.

To the Editors of THE LANCET.

SIRS,—May I call the attention of your readers to the existence of this society? It was founded over 100 years ago and during that time has done, and is still doing, much good work. The invested funds of the society amount to over £3000, and though the membership has fallen of late years to rather a low level, I am glad to be able to report a decided increase during the present year. Dr. Gordon of Exeter is president and the annual meeting will be held in Exeter in May. I shall be glad to receive the names of any gentlemen wishing to join before that date.

I am, Sirs, yours faithfully,

ELGAR DOWN,
Honorary Secretary and Treasurer.

Wingfield House, Stoke, Devonport, April 15th, 1907.

THE MEDICAL OFFICERS OF THE HIGHLANDS AND ISLANDS.

To the Editors of THE LANCET.

SIRS,—When considering the above vexed question there is a point which seems always to be missed—viz., that there is no statutory obligation imposed upon parish councils in Scotland to provide medical men for the benefit of the ratepayers at large. Their business legally is to see that the paupers receive medical and surgical attention. If parish councils agree to conform to certain rules laid down by the Local Government Board they can participate in the medical relief grant. The legal relationship between a medical man and his parish council begins and ends with the latter's duties to the paupers (including the pauper lunatics), and in some cases his duties as public vaccinator when he has been appointed to that office by the parish council. Beyond these duties, for which the medical officer is paid a "fixed salary," neither they nor the ratepayers have any jurisdiction over the medical officer. It is the over-stepping of this boundary by Highland parish councils which has caused all the unfortunate friction between them and their medical officers. If in any parish the ratepayers as a whole, or a section of them, want a doctor to reside in their midst it is open to them to form an association, advertise for a doctor, appoint, and pay him a salary agreed upon mutually. I say it is no part of a parish council's duty to step in and act on their behalf. Highland parish councils in appointing a medical officer consider primarily the ratepayers; the paupers are apparently quite a secondary consideration except in so far as it is through them that financial assistance is forthcoming from the medical relief grant.

If there is a genuine want of medical assistance for the non-pauper poor in the crofting counties it proves the need of legislation in order to provide it, and not leave it to the over-taxed charity and humanity of the medical officers as at present. The whole of "the true and unprejudiced account" of the position of the combined parish councils of Kintail, Glenshiel, and Lochalsh in regard to their medical officer bears out my contention that the ratepayers are the primary consideration. There was a petition (by the way, there is no mention that this one was not *bonâ-fide*; it seems that it was only the one got up in favour of the doctor which the parish councils would have us believe was "cooked") sent in to the combined councils from the villagers of Kyle and Plocton, asking them to appoint a doctor for each place as they found the present one was no longer fit to discharge his duties. This seems bordering on the libellous. What "duties" did these worthies find he was neglecting? Was an assistant required to help the doctor to attend the paupers? I do not think parish councils have any concern with a medical man's physical and mental fitness, except they find that he has, in fact, proved himself physically or mentally unfit to carry out satisfactorily his duties to the paupers.

I have no wish to foment the acute feeling which at present exists between Highland parish councils and their medical officers but I am anxious to have the position of the Highland medical officer clearly defined. I am also desirous to see the non-pauper poor in Highland and island parishes provided with efficient medical assistance, but at the same time with a due regard to the doctor's interests.

I am, Sirs, yours faithfully,

March 28th, 1907. NEMO.

*** Nemo's contention is perfectly sound and we have referred to the point on more than one occasion, notably in our issue of March 8th, 1902, p. 685, in an annotation dealing with the parish council of Clyne.—ED. L.

MEDICAL LAW AND LIMITED COMPANIES.

To the Editors of THE LANCET.

SIRS,—In your issue of March 30th you published under this title a communication from Mr. L. Strangways on the evading of the Dental Acts. I can corroborate his experience by mine extending over 25 years in a mining district of South Wales. I know of at least three cases where young men have gone through the training and the hospital courses required for dental qualifications, and have not taken a diploma because (it is stated) they would thus be deprived of the power to earn their livelihood by their profession.

There are also cases of dentists who have been registered and who have given up the position for the same reason; I do not wonder at that. The bulk of the dental work in the mining community of South Wales is done by unqualified men, sometimes druggists and sometimes not, who advertise largely in newspapers and by circulars, who exhibit artificial teeth in decorated cases, and who employ an army of canvassers to make house-to-house visitations. These men administer anæsthetics, general and local. I know a district in South Wales with a population of 200,000 in which there are only two qualified dentists, doing very little work, while

there are over two scores of "teeth men" who are quite busy. It has been remarked (and much misquoted) that British law is "a ass, a idiot"; in this case the description seems warranted. In the circumstances the Dental Acts must remain dead letters until the law virtually prohibits dental practice without qualification. No doubt the General Medical Council has done some good in checking unqualified practice in those localities where medical men are at war with each other or where keenness of competition is felt, but that is all, the onus of prosecution being thrown on private individuals.

I read in THE LANCET of March 23rd that Bills have been introduced in the House of Lords to prevent medical and dental practices being carried on by unqualified persons under the pseudonym of a company. No doubt as far as medical practice is concerned, the enactment will limit the scope of quackery but in dental practice it will prove a failure. It will be seen by the advertisements in the lay press that advertising dentists, having seen the danger signal, have ceased in many cases to call themselves "companies" or "dentists." They call themselves nothing, or "teeth men" or "manufacturers of teeth," using any description to blind the majesty of the law.

I am, Sirs, yours faithfully,

March 30th, 1907. AN OLD-FASHIONED PRACTITIONER.

THE MILK-SUPPLY OF LONDON: SOME PERSONAL OBSERVATIONS UPON ITS RAILWAY TRANSPORT.

(FROM A CORRESPONDENT.)

I.

The Milk Consumption of London.—The Area of Supply.—The Distribution of Cows in England.—The Obvious Points on which a Sanitary Milk-supply Depends.

THE condition of its milk-supply is of such enormous importance to a community that any set of circumstances having relation to the purity of London milk may be held worthy of notice in detail. The method of the railway transport of milk to London is of minor importance compared to some of the questions in which the milk-supply of the metropolis is the subject matter, but none the less the facts with regard to it are of great medical and sanitary interest. My personal observations are scattered and desultory, as they were bound to be from the way in which they were made, but I believe that their publication will none the less serve a useful purpose.

Mr. R. H. Rew estimated[1] that in 1892 the annual consumption of milk per capita in London was 11·5 gallons, or 0·25 pint per day, and this was the first time since the metropolis approached its present size that any trustworthy calculation of this sort was made. Dr. George Newman, in his recent work on "Infant Mortality," estimated that in Finsbury in 1903–04 the consumption of milk per head was 0·21 pint per diem, but that among the very poor of these not more than 0·10 pint was consumed daily. Dr. Newman's figure agrees fairly with Mr. Rew's, as Finsbury is not a rich borough, and might be expected to give a result slightly below the average of London. Both figures are probably high. For the whole of London and for all classes an estimate of a daily consumption per capita of 0·20 pint will not err on the side of exaggeration. This enormous milk-supply, enormous in its aggregate amount, though small if considered from the standpoint of individual consumption, is drawn from a periphery with a general radius of about 150 miles. Within the boundaries of London itself there are about 5000 cows, but for practical purposes their resulting milk can be disregarded. The same may be said of the Continental milk importation. While the importation into Great Britain from Europe of condensed milk has greatly increased, in 1905 amounting to 893,634 cwts., the importation of fresh milk from the same quarter has very much decreased, in 1901 amounting to 14,459 cwts. and in 1905 amounting to only 866 cwts. The milk-supply of London comes from districts outside the metropolitan area, some of which places are situated at the very considerable distance of 150 miles, though most of the places are much nearer, and a few, like certain Welsh and Scotch localities, are twice or three times as far off.

London levies contributions for milk on all parts of Great Britain—from Sussex in the south, from Scotland in the north, from Norfolk and Lincolnshire in the east, from Wales in the west, and in particular from the circle of the Home counties. These counties are quite well supplied with dairy farms fortunately. The Agricultural Returns Report for Great Britain, 1906, gives the following list of the districts in which cows and heifers in calf are to be found and their numbers. The list will give a good idea as to the districts of Great Britain from which London milk is obtained and the amount of supply from such localities: (1) Bedfordshire, Huntingdonshire, Middlesex, and London, 131,000; (2) Norfolk, Lincolnshire, and Yorkshire (East Riding), 136,000; (3) Kent, Surrey, Sussex, Berkshire, and Hampshire, 187,000; (4) Nottinghamshire, Leicestershire, Rutland, Northamptonshire, Buckinghamshire, Oxfordshire, and Warwickshire, 200,000; (5) Salop, Worcestershire, Gloucestershire, Wiltshire, Monmouthshire, and Herefordshire, 263,000; (6) Somersetshire, Dorsetshire, and Cornwall, 353,000; (7) Northumberland, Durham, and Yorkshire (North Riding), 242,000; (8) Cumberland, Westmorland, Lancashire, Staffordshire, Cheshire, and Derbyshire, 479,000; (9) Wales (12 counties), 280,000; (10) Scotland, 437,000—making a total in round numbers of 2,700,000 cows and heifers in calf in Great Britain. According to the same report there were in the United Kingdom in 1905, 4,211,916 cows and heifers. Judging from this estimate there are about 1,500,000 cows and heifers in calf in Ireland, nevertheless little or no milk is sent from Ireland to England. It seems somewhat strange in these days of cold storage and turbine steamers that efforts have not been made to draw some of England's milk-supply from Ireland.

As would be expected, the larger portion of the London milk-supply comes from the contiguous counties, of which the Great Western Railway traverses the most productive, but milk is brought into London by all the principal railways at all hours of the day, being conveyed by special milk trains, by passenger trains, and occasionally by goods trains. A large proportion of it is transported by special trains, especially that which comes from considerable distances, the amount of time necessarily occupied *en route* being thus minimised. The Great Western Railway is the largest carrier of milk into London, but the Great Eastern Railway, the Great Northern Railway, the London and North Western Railway, and the Midland Railway are also responsible for the carriage of large quantities, bringing milk to London from the farthest points also. The London and North-Western Railway brings milk in special milk trains, a small quantity coming from Scotland. The Midland Railway also brings milk from Scotland, employing special trains for the bulk of its milk transport service. The Great Northern Railway employs special trains chiefly for its milk transport service. The amount of milk brought by the South-Eastern is not so great, but the South-Western is responsible for a considerable supply. The average long distance from which milk is brought to London by the railways is from 130 to 150 miles, while 400 miles, the distance which milk is brought by the Midland, and by the London and North-Western Railway from Scotland, is the greatest. The fact that some of the London milk-supply has to be conveyed over such long distances ere it reaches its destination, occupying a considerable time on the journey, makes the manner in which it is carried and cared for during transit a matter closely affecting the public health. The following obvious questions arise, on the answers to which depends the conclusion whether proper steps are taken by those interested in the conveyance of milk to London to minimise so far as is possible the risk of contamination of the fluid. What are the precautions observed by consigners and consignees? To what extent do the railway companies coöperate with these in order that the milk may be delivered in London suitable in most respects for human consumption? Is the milk put into proper receptacles, which are sealed or locked, so as to prevent tampering with the fluid on the journey, or to serve as a precautionary measure against the introduction of dirt? Is the greater part of the London milk-supply conveyed by special milk trains or brought in by ordinary passenger trains? Are the special milk vans suitable for the purpose to which they are put?

It is commonly stated that many consigners of milk do not carry out precautions which would tend to insure a

[1] Journal of the Royal Statistical Society, 1892.

pure milk-supply and that the railway companies do not find it to their pecuniary interest to give the attention to their milk transport service which its importance deserves. Especially has it been urged that milk sent to London by small dairy farmers, which is frequently carried in the vans of passenger trains, is peculiarly liable to contamination owing to the conditions in which it travels. I have visited many of the principal London railway stations with a view to answering these questions, choosing for my visits in each case the London terminus of the line. The amount of milk that actually reaches the terminus is not great in comparison with the amount that remains at large junctions and suburban centres in the outer rings of London, but the machinery for reception and distribution is similar. It will be understood that my visits of inspection were undertaken in no official way. I went unaccredited and no doubt I remained in ignorance when I came away of many things which a sanitary official might have learned. On the other hand, my little tour of the London railway stations consisted of a series of surprise visits. I saw the persons engaged in the transport and distribution of the London supply off their guard. I should add that whenever I asked questions I always received courteous replies.

(To be continued.)

MENTAL DISEASES AND THEIR LEGAL IMPORTANCE.[1]

(FROM A CORRESPONDENT.)

THE lectures on Mental Diseases delivered by Dr. Legrain during the session of 1905 to the students of the Paris Faculty of Law are now published in book form and are noteworthy not only on account of their intrinsic value but also because their appearance is a very significant sign of the transformation which is being gradually wrought in the legal view of the nature of crime and the meaning and aim of punishment. In France, as in Italy and in Germany, even in the more conservative intellectual circles, it has come to be recognised generally that the attitude of society towards the criminal can no longer be regulated by the formulæ of a worn-out psychology, and that in the revision of methods and principles which is seen imperatively to be necessary, the modern conceptions of the physiology and pathology of mind must have full consideration. To this tendency we must attribute the commendable action of the authorities of the Paris Law School in inviting a distinguished alienist to lay before their students the medical view of criminology. The aim of Dr. Legrain has been to familiarise the future administrators and interpreters of the law with the spirit and method of scientific investigation as applied to disorders of conduct. In this respect his work differs altogether in character from the ordinary treatise on legal psychiatry, and I wish, for this very reason, to bring his views before the notice of readers of THE LANCET.

Dr. Legrain does not adopt the standpoint of the expert who brings his technical knowledge to bear on the specific problems of responsibility which come before the courts but who at the same time implicitly recognises the view that the medical and legal spheres are distinct and separate, and therefore confines his attention to the questions arising when these two spheres come into contact. He claims for psychiatry a much more extensive authority and maintains that the study of the disordered mind, which has proved of such immeasurable value in modern psychology, is an indispensable guide to the proper appreciation of the phenomena of conduct in criminals of every category. In consonance with this idea his chief concern throughout these lectures is to impress on his hearers the wider indications to be drawn from the clinical material presented to them, so as to counteract in their minds those *a priori* notions of the unity and stability of the ego which underlie the classical doctrines of criminal responsibility. With this view he first discusses the evolution of the personality and the rôle of sensory impressions in its constitution, illustrating this latter point by cases of hallucinatory insanity. The morbid transformation of the ego under the influence of the logical associative processes is similarly demonstrated by some observations of the *délire chronique* of Magnan. From this the author passes on to the consideration of what, in a work which is ultimately concerned with facts of conduct, is naturally the most important branch of his subject—namely, the phenomena of the unconscious mind; and to this matter he devotes most of the remainder of the volume. Starting with the evidences of cerebral automatism in states of reverie and in the facts of artistic creation such as the sense of poetic inspiration, the author touches on the ordinary phenomena of dreaming as the clearest instance of the emergence of the subconscious activity of the mind, and in this connexion he refers to the important influence which is sometimes exercised by dreams in the development of criminal impulses, as when, for example, a vague emotional state, as of jealousy or hate, calls up in sleep a series of congenial perceptions the vividness of which reinforces and fixes the originally faint impulse and so gives it effect in the waking state, or, as perhaps more often occurs, in the transitional stage between sleeping and waking. The cases of alternating personality, again, afford striking illustrations of the enormous part taken by the subconscious in the constitution of the ego; and the same mechanism, in Dr. Legrain's opinion, may be invoked to explain not only the *folies circulaires*, but also the cases of recurrent insanity, for which he coins the graphic but hardly translateable term *délires à éclipse*. Instances of this sort, in which at longer or shorter intervals, a systematised delirium always of identical or nearly identical content takes possession of the consciousness, compel, in fact, the assumption that in the sane periods of eclipse the delirious complex must have been latent in the subconscious mind. To this view the author attaches very great importance, for he holds that we can find an exact correspondence between such cases of recurrent insanity and certain forms of criminal recidivism—that, in short, parallel with the *délires à éclipse* we have the *délits à éclipse*. This ingenious suggestion, which can unquestionably find much support in the tendency to stereotyped offences so characteristic of certain criminals, enables the author to interpret in accordance with his guiding principle the "borderland" cases which pass their existence between the prison and the lunatic asylum.

I make no attempt to follow Dr. Legrain through his interesting review of the rôle of the unconscious mind in the dream-states of epilepsy and alcoholism, in the imperative conceptions and impulses of the hereditary degenerate, where we find automatism coexisting with a lucid but impotent consciousness, and finally in the perverted conduct of the morally imbecile. These chapters with their wealth of clinical illustrations are amongst the most valuable and suggestive in the book. It is only in the last lecture that the critic will find matter for less favourable comment. Possibly from a desire to minimise the shock to the legal mind of a doctrine so subversive of received ideas, Dr. Legrain has here abstained from pressing his argument to its logical conclusion. He even appears to accept, though doubtless with reservations and merely as a provisional arrangement, the common division of offenders into responsible and irresponsible, sane and insane; and, while claiming for the second category, which he would make as comprehensive as possible, the status and treatment of invalids, he would be prepared to leave the sane criminal to be dealt with by ordinary penal methods. This attitude, which would seem in part to be adopted through opposition to the dangerous and illogical doctrine of partial responsibility, is, however, obviously inconsistent with the author's main thesis, which involves a total repudiation of the fallacy that there can be a psychological equality before the law. And even from a purely opportunist point of view such an attitude is surely of very questionable policy. I think most English students of psychology will agree with me here. By helping to keep up the fiction that the psychology of crime is essentially different in the sane and in the insane we tend to interfere with the natural evolution of penological methods and to retard the time when the factitious opposition between legal and medical ideas will be brought to an end by rational solution. Such a solution should leave to the judge the unfettered decision as to the social gravity of the criminal's conduct, whatever his mental state, but it must be recognised that the details of his subsequent control and treatment belong to the province of psychiatry. To this solution, which is the logical outcome of the arguments which he has so ably stated, I trust that Dr. Legrain

[1] Eléments de Médecine Mentale appliqués à l'Étude du Droit: Cours professé à la Faculté de Droit en 1905. Par le Dr. Legrain. Paris: A. Rousseau. 1906. Pp. xxvi.-450. Price 10 francs.

will boldly carry his hearers in his next course of lecture on this most important question.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE summer session commenced on Monday last, and from the record of the first few days there seems to be every prospect of a good entry of students and a generally successful term. The work has begun a week earlier than last year and the Easter recess has been very short. There are disadvantages associated with this arrangement but it is necessitated by the fact that the examinations commence early in June, and if the work in connexion with them is to be completed the session must begin in the middle of April. In the medical department the work is particularly heavy during this term, and in some of the sections it has been considerably increased by the new arrangements which have been made for the convenience of the dental students, who are now provided with a particularly well-planned course.

The Municipal Sanatorium.

When I drew attention in my last communication to the health committee's proposal that the council should decide to purchase an estate on the Cotswold Hills, near Cheltenham, for the purpose of a sanatorium, I had no idea that the scheme would meet with the somewhat strenuous criticism which developed as soon as the details of the plan became known. It has been urged that the site was too large and too small, that it was too far away from Birmingham, it was not well adapted for the purpose, that a committee of medical men ought to have been appointed to consider the matter, that better sites could be obtained at less price, and that the scheme was far too costly. Many letters discussing some or all of these points have been written to the newspapers and their most striking peculiarity seems to have been the sublime indifference of their writers to two facts: first, that our medical officer of health has seen and knows more of sanatoriums and their requirements than anyone else in Birmingham; and secondly, that the matter has been under consideration for a long period, during which desirable and possible sites have been carefully considered. If the site on the Cotswold Hills is not ideal it is the best that could be obtained. It is well situated; it has plenty of room, in some respects too much; and it can be reached from Birmingham in one and three-quarter hours. As the matter was pressing, for the period of option to purchase expired in a few days, the subject was considered at an adjourned meeting of the council held on April 16th, and although many objections were raised, and even the advisability of dealing with early cases, whilst the more infectious incurable cases were left as foci of contagion, was questioned, it was finally decided to make the experiment and the purchase of the estate was authorised. The decision is undoubtedly a wise one and the experiment is well worth its cost; indeed, it will probably prove that this is one of the most important steps which the council has made in advancing the general plan which the health committee is developing in its attempt to combat a most destructive foe.

The Health Report of Aston.

The report of the medical officer of health of Aston (Mr. F. H. May) for the year 1906 is particularly interesting in connexion with the epidemic of scarlet fever and diphtheria from which this and other districts suffered last year. As regards both diseases, there seems to have been no special focus of infection. In the case of diphtheria more especially Mr. May points out that particular attention was paid to those schools and departments which had been suspected on previous occasions as centres of diffusion, but no such centres were found during this attack and it was not necessary to close any schools on account of diphtheria. Unfortunately, bacteriological examination of the secretions in suspicious cases was not always resorted to in the early stages, and of the 107 notified cases only 16 were verified by bacteriological examination "at or about the time of notification." This is the more remarkable, inasmuch as the county council has made arrangements with the University for the examinations to be made free of cost to the medical man. It appears, therefore, that the practitioners as a body have somewhat neglected the opportunities placed at their disposal. The death-rate for the year was 14·9 per 1000, which compares well with the 16 per 1000 of the 76 largest towns of the kingdom, but the zymotic death-rate was not so satisfactory, amounting to 2·9 per 1000, which is greater than the average death-rate for England and Wales, and the infantile mortality rate is decidedly unsatisfactory, for it reached 162 per 1000, or 29 more per 1000 than the rest of the country, and 16 per 1000 more than the average of the 76 largest towns. It is true that a great part of this heavy infant mortality-rate was due to infantile diarrhœa, but this disease was prevalent in other places also, and it is clear that the mothers of Aston require further training in their duties. The birth-rate of 27·6 per 1000 was better than in the previous year, which established a lowest record, but it is not entirely satisfactory.

The Health Report of Smethwick.

It may be gathered from Mr. W. F. Marsh Jackson's report for 1906 that, so far as the death-rate is concerned, Smethwick was slightly more fortunate than Aston, the result working out at 14·6 per 1000 for the general death-rate and at 2·2 per 1000 for the zymotic death-rate, whilst the infantile mortality-rate was 130 per 1000, which is less than the average for the remainder of the country and decidedly less than the average for the 76 largest towns. The medical officer attributes the satisfactory state of the infantile mortality-rate as due, in part at least, to the work of the health missioner (Miss McNicholl). The birth-rate was 31·2 per 1000. As in adjoining districts scarlet fever and diphtheria were rampant but the number of cases of typhoid fever was the same as in the previous year.

The Health Report of West Bromwich.

It appears from Dr. J. H. H. Manley's report that on the whole the health of West Bromwich during 1906 was a little better than that of Aston and not quite so good as that of Smethwick. The general death-rate was 15·6 per 1000 and the infantile mortality 159 per 1000. The birth-rate, 31·6 per 1000, was quite satisfactory as contrasted with other parts of the country. On the whole the report is satisfactory, as it shows continued improvement and, no doubt, better results still will be secured as the midden system and its attendant dangers are abolished.

Infantile Mortality in Dudley.

The question of infantile mortality is engaging the serious attention of the authorities in Dudley, and certainly they need to consider their position carefully, for, as the mayor pointed out at a recent meeting, in spite of the excellent situation of the town and its good system of drainage the mortality, and especially the infantile mortality, compares unfavourably with other towns. Mr. J. H. Wilkinson advocates the employment of health missioners, health education, and municipal sterilised milk depôts as measures which have been adopted in other towns with good results. The steps to be taken in Dudley are, apparently, not yet decided upon, but now that the subject is being thoroughly ventilated no doubt something definite will be done.

April 16th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool Corporation and the Preservation of Infant Life.

THE health committee has advised the corporation to support the Infant Life Preservation Association in the effort of promoting legislation requiring the compulsory notification to the medical officer of health of the birth of every child within 48 hours of birth. This obligation will be placed upon the parent, or medical attendant, or nurse, or other responsible person, in the same manner as required by the Notification of Diseases Act. The object of the measure is to get into touch with mothers in the poorer districts in order to instruct them as to the management of the infant in the matter of proper feeding and other hygienic conditions. Huddersfield has the benefit of a special Act of this kind by means of which female sanitary inspectors are sent to the homes of the poor to instruct the young mothers in necessary knowledge as to proper feeding and how to manage the infant. Liverpool is

desirous of following in the wake of Huddersfield, as infantile mortality in the lower districts of Liverpool has been a constant source of anxiety to the medical officer of health. The step is regarded as a sound one and strong hopes are entertained of thereby saving many lives. The poorer districts will, no doubt, alone be visited by the female inspector, although it is intended to make the Act of general application.

The House-fly and Infantile Diarrhœa.

At a recent meeting of the health committee a discussion arose on the question of the prevalence of zymotic diarrhœa and the part played by the house-fly in the propagation of the disease, which was stated to account for 44 per cent. of the infantile death-rate of the city, principally in the summer months. A motion was proposed and seconded in the following terms:—

That this committee, being of opinion that the germs of diseases, especially of zymotic diarrhœa, are spread by house-flies resolves that immediate steps be taken by the departments under its control to remove all accumulations of decomposing organic matter, especially in ashpits and middens, which are likely to afford breeding-places for flies and to enforce greater cleanliness in districts in which zymotic diarrhœa is most prevalent.

Dr. E. W. Hope (the medical officer of health) pointed out to the committee that the work was constantly going on, and the question was whether it could go on any faster; whether, for instance, the conversion of ashpits could be proceeded with more rapidly. About 35,000 ashbins had been put in place of the old ashpits. That was a very important matter. The closest attention was also being paid to the stables. The motion rather pinned them to the belief that the house-fly was the only cause of the diarrhœa. It was a very important contributory cause but it was by no means the only one. Food given to infants would become putrescent without the intervention of the house-fly. The investigations which the committee authorised some few months ago into the history of the house-fly had been going on during the winter months, though it was not an easy matter to get at their breeding places. Professor Ronald Ross and Mr. R. Newstead were investigating the matter, and in a few weeks—certainly within a few months—a report from them would be issued. The discussion would be of great value if it impressed on the public the necessity of disposing of domestic refuse by burning and of preventing putrescence near the windows of houses. The motion was eventually withdrawn with an expression that the medical officer would make a report on the matter.

Professor James Campbell Brown.

The honorary degree of doctor of laws has been recently conferred upon Dr. James Campbell Brown, the professor of chemistry at the University of Liverpool, by the University of Aberdeen. Professor Kennedy, the dean of the faculty of law, in presenting the candidates, said: "Dr. Campbell Brown would always be associated with the origin and progress of University College, Liverpool, now the University of Liverpool. He was recognised as standing in the very first line of practical chemists, and as analyst during a generation for Liverpool and Lancashire had done valuable public service. A pupil of the Old Gymnasium, Old Aberdeen, and a student and bursar of Marischal College, they felt proud of his career."

April 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Milk-supply of Edinburgh.

Dr. A. M. Williamson, chief sanitary inspector for the city of Edinburgh, has just issued his annual report, no part of which is more important than the section in which the milk-supply of the city is dealt with. Milk from the various sources of the city's supply has been bacteriologically examined by Professor C. Hunter Stewart at the Usher Institute. The samples taken represented 64 separate supplies from country districts as well as a number from city byres. Professor Hunter Stewart followed the line taken by Dr. A. C. Houston in his "Report on the Bacteriological Examination of Milk in Relation to Milk Standards" presented to the London County Council in 1905. The amount of centrifuged sediment was estimated and the special micro-organisms sought for were the bacillus coli communis, the bacillus enteritidis sporogenes, streptococci, and the bacillus tuberculosis. With regard to the centrifuged deposit the results were not as good as those found by Dr. Houston in the specially collected milks in London, but Dr. Houston's milks were collected with special care while in the Edinburgh investigation samples were taken at random from the ordinary supplies. The results in Edinburgh showed that in town milks in 66 per cent. of the cases examined there were less than 25 parts per 1,000,000 parts of such sediment; in country milks in 52 per cent. there were less than 25 parts; and in 56 per cent. of the railway milks there were less than 25 parts. In Dr. Houston's specially collected milks all the samples gave under 25 parts of sediment per 1,000,000 parts. Taking the special micro-organisms investigated the bacillus coli communis was found in all the samples, whether taken from town, country, or railway milks. In the specially collected London milks it was only found in 40 per cent. of the samples examined. The bacillus enteritidis sporogenes was found in 47 per cent. of the samples of town milks examined; in 28 per cent. of country milks; and in 37 per cent. of railway milks. The London figures were 40 per cent. Streptococci were found in 30 per cent. of the samples of town milk examined, in 19 per cent. of country milks, and in 14 per cent. of railway milks. The milks were also examined for acid-fast bacilli, of which the most important found in milk is the bacillus tuberculosis, and it is remarkable that none were found in any of the samples examined after sedimentation and prolonged centrifuging. This important investigation gives what may be taken as the average bacteriological condition of the milk as supplied to the milkshops of Edinburgh, and it remains similarly to study milk as supplied to the consumer after storage in the milkshop. Dr. Williamson, while recognising the satisfactory nature of Professor Hunter Stewart's report, draws attention, as he has done before, to the necessity of obtaining and exercising still further powers in the examination of byres, and in the regulation of places where milk is sold. He strongly insists upon the necessity of a milking-shed for the cows kept in city byres. He also draws attention to the want of legislation to empower the seizure of a tuberculous cow. Such a cow can at present be removed from the district of one local authority to another and supply milk for human consumption until it is detected by the officers of that district. Dr. Williamson's report also deals with the lower classes of property in the city, the inspection of one-roomed dwellings, the sanitary appliances in this type of property, and the conduct of common lodging-houses and of ice-cream shops. In all these departments satisfactory progress can be reported as having taken place during the year covered by the report, so that Dr. Williamson may be congratulated on his results and encouraged to continue his efforts in all directions which tend to the improvement of the hygienic conditions of the city population.

University of Edinburgh: Spring Graduation Ceremonial.

The spring graduation ceremonial at the University of Edinburgh was held on Friday, April 12th, and was of unusual interest owing to the fact that the Colonial Premiers were to receive honorary degrees. Only three of them were able to be present—namely, the Hon. Sir Joseph George Ward, K.C.M.G., Prime Minister of New Zealand; the Hon. Leander Starr Jameson, C.B., M.D., Prime Minister of Cape Colony; and the Hon. Frederick Robert Moor, Prime Minister of Natal. The honorary degree of LL.D. was conferred on them. Amongst the other recipients of the same honour was Professor David James Hamilton, professor of pathology in the University of Aberdeen, and Sir John Tweedy, lately President of the Royal College of Surgeons of England. After the graduation the honorary graduates were entertained to luncheon in the University Union. At the graduation ceremonial Principal Sir William Turner, in his capacity as Vice-Chancellor, presided and conferred the degrees; at the luncheon Mr. J. B. Forbes Watson, M.A., president of the union, presided.

Dangers of the House-fly.

An interesting series of experiments have been carried out by the bacteriologist to the Govan town council with a view to eliciting the part played by house-flies in the dissemination of infectious disease. Several flies were made to crawl over freshly prepared agar-agar contained in sterile Petri dishes. The dishes were then placed in an incubator at the normal temperature of the body and at the end of 24 hours

numerous colonies of micro-organisms appeared on the surface of the media. On microscopical examination these colonies were seen to consist of growths of micro-organisms associated with the presence of sewage and decomposing organic material. The contamination of milk and other food by the house-fly may thus possibly help to explain the prevalence of summer diarrhœa, especially in the case of bottle-fed children.

Glasgow Lock Hospital.

The 101st annual report of this institution shows that 362 patients were admitted during last year. The average number of patients resident was 51, which is the highest figure recorded in the annals of the hospital. A most satisfactory feature is that there was a considerable decrease in the number of patients who left irregularly or before the completion of their cure. It is to be regretted, however, that there is an increase in the number of young patients and the directors have drawn the attention of the Local Government Board to this point.

Glasgow Maternity Hospital.

Like almost every other hospital in Glasgow, the Maternity Hospital is appealing to the public for funds to complete the additional buildings at present in course of erection. The hospital was originally started in 1834 and has occupied different sites during its history. The present hospital was built in 1840 and for a number of years the directors have been hampered for want of accommodation both for patients and students. In 1860 the number of indoor and outdoor patients was 994; in 1880 it had increased to 1288, and in 1904 to 3455. The amount obtained from fees of students and nurses in the early years of the hospital was under £100, while in 1904 the amount had risen to £2083. The directors believe that the buildings at present drawing towards completion will enable them to meet the pressure on their present inadequate accommodation for patients and at the same time to provide a school equipped in all its departments for the teaching of practical obstetrics and gynæcology. Towards the price of the ground and the cost of the new buildings a sum of about £40,000 has been subscribed, but £35,000 are still required.

Infectious Diseases in Glasgow.

The weekly return of the sanitary department shows that there are in Glasgow 100 cases of cerebro-spinal fever under the observation of the authorities as compared with 110 in the previous week. In the city hospitals and under sanitary supervision at home there are 1336 cases of infectious disease of all kinds.

April 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Surgeons in Ireland: Election of Examiners.

A MEETING of Fellows will be held on Tuesday, May 7th, at 4.30 P.M., pursuant to the provisions of the Supplemental Charter, to witness the election of examiners. "Graduates of any University which may be from time to time recognised by the College shall be eligible for election as examiners in the subjects of general education. All the other examiners shall be Fellows or Licentiates of the College or professors or lecturers in any school of medicine recognised by the College. Persons engaged in private teaching are not eligible to be examiners." Candidates are requested to lodge their applications in writing with the Registrar, at the College, on or before Tuesday, April 30th, at 10 A.M.

Meath Hospital and County of Dublin Infirmary.

The annual meeting of the governors and supporters of the Meath Hospital took place on April 15th, Mr. Arthur Andrews presiding. The secretary, Mr. Francis Pearose, submitted the report of the work done during the past year, in which he mentioned that the hospital board of superintendence had visited the hospital, the hospital committee of the Dublin corporation, while the visiting committee of the Dublin Hospital Sunday Fund inspected the institution without notice, and all reported favourably of the condition in which they found it. He said that the financial state of the hospital was unsatisfactory as the deficit in the funds had existed for some years and a debit balance of £5381 exists at this time—the close of the year. Mr. John Mulhall moved the adoption of the report. Sir Lambert H. Ormsby, in seconding the motion, said that he wished the charitable people to know that the hospital had carried on its work uninterruptedly for 150 years. The report and the financial statement were adopted. Sir John W. Moore proposed that the thanks of the meeting should be returned to the Dublin county council and the city of Dublin municipal council for their grants. He had noticed with satisfaction that the corporation had raised its grant to £300 a year, and he especially thanked the Dublin county council for its contribution of £1000 a year. He did not know what they could do without that, considering the large number of patients admitted from all parts of the county.

Royal Victoria Baths at Kingstown.

The Kingstown urban council passed a resolution in favour of establishing the Victoria baths at Kingstown on April 15th. The baths will cost £10,000, but they are much required.

Cerebro-Spinal Fever in Belfast.

At a meeting of the public health committee held on April 11th the superintendent medical officer of health reported that during the week ended April 6th there had been 27 cases of cerebro-spinal fever, as compared with 31 for the previous week. The total number of cases notified was 283, with 177 deaths. A nurse at the union infirmary—said to be the first contact case in the epidemic—has died, and also a policeman. The general death-rate for the week ended April 6th was actually 27 per 1000, and from the principal zymotic diseases 1·8. There were in Purdysburn fever hospital 26 cases of enteric fever, 29 of scarlet fever, eight of diphtheria, and 42 of cerebro-spinal fever.

The Belfast Health Commission.

During the week commencing April 8th the Health Commission held two sittings each day and has made many inspections in the city. The following, who were nominated by the Ulster Medical Society, appeared and gave evidence as to the questions of water, drainage, houses, milk, the prevalence of preventable diseases, the backward condition of the public health administration, and similar matters: Sir John Byers, Professor J. A. Lindsay, Dr. W. Calwell, and Dr. Alexander Dempsey. Dr. M. H. Aicken also gave evidence as to the insanitary houses. Dr. J. McCaw and Mr. H. N. Barnett will appear later. The commission has adjourned until April 24th, when the expert witnesses in reference to the water-supply on behalf of the city corporation and the Belfast Water Commissioners will appear.

April 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Calcium Chloride in the Treatment of Urticaria.

AT a meeting of the Society of Biology held on March 15th M. Netter read a paper giving an account of some cases of urticaria in which he had tried calcium chloride as recommended by Wright. M. Netter had used it in various kinds of œdema, in cases of chilblain, and in pruritus. Wright was led to use this salt by theoretical deduction from having seen urticaria supervene after the ingestion of acid fruits, after injections of serum, and after the giving of soap enemata, all of which render the blood less coagulable by taking the lime salts out of it. Wright considered that this diminution of coagulability was in direct relation with the production of urticaria. Without doubt the mechanism concerned is of a very complex nature, for the calcium plays a great part in many cellular and organic functions. The part which calcium plays in the nervous system is obvious.

Lipomata and Tuberculosis.

On April 2nd M. Poncet read a paper on the above subject before the Academy of Medicine. His thesis was admirably worked out and he brought evidence in support of it. The main point was that he attributed to tuberculosis the origin of certain lipomata which grow (*poussent*) under the skin and which are commonly called "loupes." This seems curious at first sight for lipomata are fatty growths and tuberculosis is always credited with producing a thinning effect. But in M. Poncet's view this is beside the question. He put on one side congenital lipomata and proceeded to demonstrate that tuberculosis, in so far as it is an intoxication by the toxins formed by Koch's bacillus, is capable of

bringing about inflammatory reaction in many organs. It brings about special joint affections in arthritic subjects which M. Poncet has named tuberculous rheumatism. It can also produce glandular inflammations and adenomata which often simulate cancer. Finally it is not uncommon to see it produce lipomata. Fat tuberculous patients are by no means rare and lipomata may be inflammatory tumours provoked by tuberculosis of which the pulmonary affection is only one manifestation. Lipomata are generally seen in tuberculous subjects in whom the disease is latent.

Antidysenteric Serum.

On April 9th M. Vaillard and M. Dopter communicated a paper upon the result which they had obtained by the employment of their antidysenteric serum. They had treated 243 cases of dysentery, of which 200 were resident in the town or in the hospital and 43 in lunatic asylums. The former group included 99 very severe cases, of which 25 appeared in certain danger of death. The mortality, however, was only ten cases, of which six were *in extremis* at the moment of the injection. The second group of cases showed slightly less favourable results. One very striking point was that after the first injection of some 30 centimetres abdominal pain and the tenesmus disappeared. The stools diminished in frequency, often coming down to one per diem. The injections could be repeated as often as was necessary, but after 10 or 15 days at the most the patients were quite well. M. Widal confirmed these excellent results by relating a case which came under his personal observation. M. Chauvel and M. Vincent hoped that the treatment would be tried in the epidemics of dysentery which ravaged armies in the field with such fatal effect. The serum used is derived from horses immunised against the bacillus dysentericus by gradual injections of the culture. The treatment does not affect the course of amœbic dysentery but only bacillary dysentery.

April 16th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Hygiene of the Book.

"CLEANLINESS is next to godliness," says the proverb, although, like many a "wise saw," it is liable to be put out of court by the "modern instance" and to have new meanings thrust upon it. The sacred volume itself ought (*siquid aliud*) to be the nearest neighbour of "cleanliness," and yet for many years back THE LANCET has led a crusade to relieve witnesses of the risks incurred by "kissing the book." That crusade has proved salutary in other directions, and here we have a distinguished member of the Turinese school corroborating the Parisian Academy of Medicine in the revelations it has recently made through Dr. Lop and Dr. Albert Josias as to the pathogenic microbes communicable by the circulating library or even by the volumes passed from hand to hand in the hospital, the hotel, and the *pension*. Books, in proportion to their interest, are long enough in the keeping of sufferers from infective disease to become charged with pathogenic germs which take kindly to paper, itself the product of rags and stationary refuse often a fitting nidus for their culture. Dr. Costanzo Einaudi refers to cases in which, for a series of days, a book in much request has been coughed over, sneezed over, handled with fingers moistened with saliva to turn the semi-agglutinated leaves till it has become a veritable hive of infective mischief. In Italy, where books are kept on the school premises for the use of the young scholar, the risks referred to are peculiarly rife—so much so, in fact, that they are engaging the serious attention of the national associations for combating the spread of tuberculosis. In the cases of such school libraries Dr. Einaudi discusses the suggestion of Dr. Lop and Dr. Josias that the books should be periodically disinfected with formaldehyde or that blend of sulphurous and carbonic acid in equal parts known as the "gas Pictet." With his knowledge of Italian resources and methods, however, he sees much difficulty in the systematic enforcement of such precautions and has to fall back on the old, old remedy of "education," by which cleanly habits become second nature in every personal act or operation down to that of handling and perusing the printed page. Till that consummation has been brought about, however (that is in the "sanitary millennium," when every boy and girl has been taught, in Sir James Coxe's phrase, to be "the intelligent custodians of their own health"), Dr. Einaudi sees nothing for it but a periodical holocaust in the urban and communal schools of all books which have become filthy or presumably infected. Scholastic literature, he remarks, is now cheap enough to make such a recurrent sacrifice of small consideration. The same regulation should be practised in hospitals, asylums, and prisons. As to the more favoured public which frequents the hotel or the *pension* the cleanly habits presumably characterising it should be safeguarded sufficient for the due and decorous treatment of the book in a hygienic sense.

"Proximus Ucalegon!"

Virgil's hint as to the consequences when your neighbour's house is on fire has its application to international hygiene. On March 16th THE LANCET drew attention to the importation of variola from France across the Piedmontese frontier. Happily the energetic measures taken by the sanitary authorities have kept the unwelcome "arrival" at bay and the alarm, as widespread as it was justifiable, is now a thing of the past. From Italian Switzerland, however, the invader has put in a fresh appearance. I hear from Bellinzona that 36 cases have been certified in the canton Ticino, two of them terminating fatally. The cantonal administration is showing laudable activity in isolating the localities of the outbreak, and at Dervingen and Lutterbach—the two main foci—a soldier is placed as sentinel at every house where the disease has declared itself, while the closing of the local manufacturies is in contemplation. Many shops and public offices have suspended work; numerous families have left the place for a season, and the erection of two isolation hospitals while attesting the energy of the authorities is interpreted by the population as more than justifying the stampede. In Italy every precaution is being taken at the various frontier towns, particularly at the railway stations, to keep the ill-omened visitant in check, while she has the consolation of knowing, in the words of Dr. Welsford's "Rome as a Winter Resort," that the "voice of the anti-vaccinator is never heard" within her borders.

April 12th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

A Congress on the Care of Children.

THE increasing interest felt in the alleged deterioration of the national physique has led to a congress on the care of children being held in Vienna a short time ago, one of its objects being the protection of the destitute or neglected offspring of the lower classes of the population. The various speakers at the congress agreed that something must be done to check the two chief causes of national degeneration—namely, alcoholism and the employment of child workers, but the legislative and other means to be adopted for the attainment of this end gave rise to much controversy. One of the suggestions that was made went even so far as to advocate the handing over of the new-born child to the care of the State, following the practice of ancient Sparta. The results of the meeting of the congress are a Bill to be laid before the next meeting of Parliament dealing with the "sweating" of children and a proposed reform of the legal procedure in the case of youthful criminals. The Bill will make it a punishable offence to employ any children under 12 years of age at any work in factories, and from 12 to 14 years children will only be allowed to work for a period not exceeding three hours daily. The other reform refers to the punishment of youthful offenders. These will no longer undergo imprisonment in association with adult criminals—a system the evil effects of which have been long recognised—but they will be detained in special homes. The practice known as "baby farming" will also be placed under the special control of the local boards. Several other very useful suggestions were made at the congress, as, for instance, in the proper instruction of mothers in the methods of feeding their infants. An important part of the proceedings of the congress was the discussion of the care of foundlings. In Austria the yearly total of illegitimate children is considerable and they may be placed in foundling homes on payment of a certain sum; they are often of low vitality in consequence of the bad hygienic conditions under which their

mothers or their foster-mothers happened to be living. The anti-alcohol movement also played a prominent rôle in the proceedings, as the bad influence of parental alcoholism on the offspring is visible in several ways. It may be interesting to add that in some Alpine regions parents give their infants a drink of beer every day and that in Vienna within one year two cases of alcoholic cirrhosis of the liver have been found post mortem in children under 14 years of age. A motion encouraging parents and teachers to instruct children as to the possible causes of physical degeneration was adopted.

Spontaneous Fracture of the Ribs in a Syphilitic Patient.

At the last meeting of the Vienna Dermatological Society Dr. Körbl showed a woman, 27 years of age, presenting several unusual symptoms of syphilitic origin. She had contracted the infection seven years ago and had been treated with inunctions of mercury. Since that time she remained free from all symptoms, until four months ago, when suddenly an infiltration of the sternal extremity of the right clavicle appeared and developed into a well-defined immoveable tumour, which still existed. Two months ago a similar nodule appeared on the sternum and four weeks later a fresh tumour was observed, but this time on the tenth left rib in the posterior axillary line. The nodule was hard, immoveable, and very tender. The patient said that when bending to the side she suddenly felt a sharp pain and a cracking noise on the site of the new tumour. She compared this sensation to that which was felt when a "bone" in a woman's corset was broken. Since that time she has felt pain at the place on coughing, turning, or deep breathing. An examination by the x rays revealed the true nature of the affection. The photograph showed a fracture of the rib, the vertebral fragment having two sharp points and the sternal fragment being distant about one and a half centimetres from the other portion. The rib itself was thickened and the periosteum was infiltrated (gummatous osteomyelitis and periostitis). Cases of such spontaneous fractures are extremely rare.

Sanitary Conditions of Vienna.

The report for the month of March, published by the General-Registrar of the department of hygiene, shows the influence of the changeable weather superimposed upon the constantly, although slowly, increasing improvement of the sanitary conditions effected by the department. Thus whilst the mortality for the four weeks was 21 per 1000 (the yearly average is 19 per 1000) the proportion at once drops to 17·7 per 1000, if only such deaths are included as were not due to influenza, broncho-pneumonia, and other acute diseases dependent on the weather, among which pertussis may perhaps be reckoned. Of all other diseases it may be said that they have a declining tendency, except cancer, which has for some time been stationary. Not a single case of cholera, small-pox, or epidemic dysentery has been notified in the year 1907 up to the present time; and the mortality of diphtheria in hospital cases and private patients taken together has been kept down constantly below 5 per cent. The examination of the Vienna water, which is undertaken at regular intervals, showed that its composition had remained constant for the last 12 months, whilst the examination of the air, which has not been long in operation, proves that the replacement of the horse by the electric tramcar or the motor-car is a distinct improvement as regards the purity of the atmosphere. The gaseous products of combustion which are emitted by the latter vehicles soon become imperceptible in the open air, especially as benzine and not petrol is the fuel used here. On the other hand, the horse droppings, which in busy thoroughfares literally covered the street for some part of the day, were quickly dried up and spread about by the wind, so that evidence of them could be found in all samples of the air even when these were taken from the remote parts of the city. Such dried-up particles easily made their way into the eyes or the respiratory organs of the people, but this source of annoyance is now very much diminished.

A Case of Tuberculous Phlebitis.

Dr. Ullmann had recently an opportunity of showing a rare condition which has been described by French authors as phlebitis tuberculosa. The patient, who was suffering from hæmoptysis, was operated upon five years ago for a periproctal abscess. Soon afterwards both gluteal regions and the anus became infiltrated, the skin assumed a dark brown-red colour and several sinuses opened up and discharged thin pus. The sinuses led to the femur. The back of the thigh showed along the well-marked cutaneous veins, following them very closely, a streak of brown-yellow, somewhat soft tissue of the nature of infiltrated lymphoid vessels. In some places they were elevated; in other places they went into the deep tissues. These yellowish vessels went down towards the veins of the calf and vanished there. Behind the internal malleolus there was a doughy infiltration which accompanied the veins. Such conditions have been recorded especially in syphilitic patients and some cases of tuberculous diseases with infiltration of the peri-venous tissue have been seen in Vienna, but such an extensive manifestation as the one shown by Dr. Ullmann was the first of its nature. The patient, who suffered much pain on walking and was in a very cachectic condition, exhibited another rare complication—namely, that around the anus the tuberculous infiltration had become hard with small papillomatous excrescences protruding from it, and on excision of one of these nodules it was found to be very similar to, if not identical with, epithelioma. Such metaplastic changes have been occasionally observed in chronic tuberculous manifestations.

April 15th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Hospital Association Formed in Ontario.

THE Canadian Hospital Association was organised in Toronto on April 1st. There was a large attendance of hospital superintendents from different parts of Canada. Dr. R. R. Ross of the Buffalo General Hospital was present from the United States and as president of the American Hospital Association delivered an address outlining the work such an association could accomplish. He stated during his address that the American Association would probably hold its next annual meeting in Canada. Dr. R. W. Bruce Smith, provincial inspector of hospitals and charities in the province of Ontario, read a paper in which he dwelt upon the problems of hospital life and work in Canada. He pointed out that in Ontario alone last year there were treated in the various hospitals of the province 41,950 patients and that the total annual expenditure had been $1,228,289. He also referred to the fact that the Government of Ontario had this year increased the grant to hospitals from $110,000 to $130,000. By this each hospital gets for each non-paying patient a rate of 20 cents per day. The following officers were elected for the new association:—President, Miss Louisa Brent, of the Hospital for Sick Children, Toronto; First Vice-President, Dr. C. K. Clarke, superintendent of the Toronto Provincial Hospital for the Insane; Second Vice-President, Dr. McIntyre, superintendent of the Kingston, Ontario, General Hospital; and Secretary, Dr. J. N. E. Brown, superintendent of the Toronto General Hospital.

The Medical Term in Quebec and at McGill University.

The legislature of the province of Quebec has decided not to increase the medical course of study in that province from a term of four years to one of five. McGill University has, however, decided to extend the course in that institution to five years, and the various studies will be spread over the curriculum, so that it will be a five-year course in actual fact and not in name only. At this institution the chair of medicine and of clinical medicine rendered vacant through the recent death of Dr. James Stewart has been filled by the appointment of three professors—namely, Dr. F. G. Finley, Dr. H. A. Lafleur, and Dr. C. F. Martin. The first will have charge of the didactic work, while clinical work will be in charge of the two last.

Ontario Medical Association and a Ministry of Health.

A deputation from the Ontario Medical Association, headed by Dr. George A. Bingham, its president, and composed of influential and active members of the association, recently waited on the Ontario Government pressing for the establishment of a Ministry of Health in this province. No definite answer was given by the Prime Minister of the province, who, however, recognised the importance of the request, as with such a Ministry he had no doubt that the health of the province could be better looked after if all matters pertaining thereto were conducted by a responsible Minister of the Crown than is the case at present. The

main argument used by the Premier was the increase in Cabinet positions, which he was very much opposed to, as, were a Ministry of Health established, there would sure to be other interests pressing their claims for Cabinet recognition.

Medical Inspection of Schools abandoned in Montreal.

Medical inspection of schools in the city of Montreal was discontinued on March 31st. This has been carried on for the past six months with very gratifying results. It is owing to failure on the part of the city council to provide sufficient funds that the medical health officer, Dr. Laberge, has been forced to notify the 40 inspectors not to do any more inspecting. The recent report compiled by the inspectors shows how very important that work has been to Montreal school children, as since the commencement of inspection there is 70 per cent. less of disease amongst school children and 70 per cent. less of uncleanliness since its establishment. Probably the city council will in the near future see the error of its ways in not providing sufficient money to pay the inspectors.

Death of Dr. George A. Peters.

Dr. George A. Peters, one of the four professors of surgery in the University of Toronto, died at his home in Toronto on March 13th from angina pectoris, which first attacked him two years ago. The deceased was born in Ontario in 1859 and was therefore 48 years of age. At the early age of 13, by the death of his mother, father, and step-mother, he was cast upon his own resources. That he was made of more than ordinary stuff is seen in the fact that he educated himself for medicine as well as doing the same for two half-brothers. He was one of the best surgeons Canada has produced, his own special inventiveness being seen in the "coat-sleeve" amputation of the appendix, by the transplantation of the ureters into the rectum in cases of ectopia vesicæ, and his method of proctoplasty and suspension in cases of procidentia recti. He was prominent in Canadian military matters and had been in command of the Toronto Light Horse up to within a few months of his death. He was the inventor of the Peters self-registering electric target for rifle shooting, in connexion with which he was in England last summer. His last literary production was read before the Toronto Clinical Society a few months ago on a "Choice of Operation in Surgery of the Gall-bladder."

April 5th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Cocaine Drunkards: the Evil in Calcutta.

THE numerous cases reported in the police columns of the press from time to time concerning the illicit sale and possession of cocaine give but a poor idea of the extent to which the habit of cocaine-eating has taken hold of certain classes of the people of India. Many medical men have reported upon the evil effects of this drug, but the general public either fail to recognise the dangers or ignore them. Cocaine is to be bought secretly in the bazaar and the curious part of its use is that the lower orders of the Indian population seem to be chiefly attracted by it. Considering that but a very small part of the population drink either tea or coffee its rapid advance into popularity is difficult of explanation. Probably the attraction of cocaine is due to the peculiar intoxication it induces, together with its power of killing appetite for food. In small quantities it enables the coolie worker to keep "going" at his work for a longer time and as small quantities at a low price can be readily purchased his taste for it is easily satisfied. Moreover, its use can be combined with the almost universal habit (at any rate in Bengal) of eating pan. In 1900 the sale of cocaine was limited to medicinal purposes and only certain persons were granted licences for selling it. In 1902 the possession of more than 60 grains by an unlicensed person was made illegal. What with the difficulties of discovering illicit sales and the small fines imposed the law has been of little avail, and notwithstanding the strict rules against importation cocaine finds its way from Germany through unscrupulous dealers in the native States and in the little strips of foreign territory that remain in India. It is said that the principal trade is through Delhi and the wholesale dealers distribute it to the panwallahs and brothel keepers. The profit is large and the drug is never sold pure, being generally mixed with flour, phenacetin, and other drugs.

The Enormous Increase of Plague in the Affected Areas of India.

During the past few weeks the mortality from plague throughout India has advanced by leaps and bounds. Three weeks ago 24,242 deaths were recorded, but for the week ending March 16th the total mortality reached 49,440. It is not Bombay now which chiefly suffers but the Punjab and the United Provinces. In these two provinces 19,565 and 16,509 deaths respectively were returned for last week, while Bombay had only 3934 deaths and Bengal 5019. The city of Lucknow seems to be having a very severe visitation, 521 deaths in the week being reported and in Karachi all quarters are affected. In the latter place the Khoja community is the only one which takes advantage of inoculation but there is a scare of plague in the bazaar and the native town is almost evacuated.

The Government of India and Sanitary Administration.

The Indian Budget for the year has been recently discussed, but notwithstanding the large surplus and the prosperous condition of the finances, enabling remissions of taxes to be made, no scheme of expenditure for sanitary purposes is even as much as mentioned. These matters are not apparently considered as of imperial concern and sanitary improvements are left to the care of the provincial governments. The recent petition of the planters in the Doors that something should be done against the severe malaria and blackwater fever which infest that district and the frequent complaints of malaria in Lower Bengal, with its waterlogged huge tracts of land, are two examples in one province of large sanitary questions which require the Government's consideration. If the council can allocate 303 lakhs for education and spend considerable sums on archæological work, surveys, and agricultural experiments the spirit of the day demands more attention to sanitation. There are certain things which cannot be left to local authorities. Even the Calcutta Improvement Scheme has been under consideration for over three years and beyond making some new roads the chances of real sanitary improvement to the city seem as far off as ever. Bombay also has its difficulties, which are more than even the Trust can deal with. At least a lakh of the labouring classes in Bombay require sanitary housing and it is estimated that 40,000 rooms must be constructed. These at a cost of Rs.500 per room will involve two crores of rupees. There are many great sanitary schemes which the Government of India might take up or if it has such satisfactory surpluses it might at least assist the local government to a greater degree in general sanitary works and administration.

March 29th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

A SERIOUS recrudescence of bubonic plague has occurred in Sydney. All forms of the disease—ordinary bubonic, septicæmic, and pneumonic—prevail, with considerable mortality. The disease is also more widely disseminated than in previous outbreaks and infected rats have been caught in the centre of the city and in various parts of it. The citizens are really becoming anxious and are at last helping the authorities in cleansing operations and rat destruction. A fatal case has also occurred at Kempsey on the Macleay river. Several cases of plague, one fatal, have occurred in Brisbane.

Vital Statistics of Sydney.

A preliminary compilation of the vital statistics of Sydney for last year has been completed by the Statistical Bureau. From this it appears that the births numbered 13,987, of which 2446 occurred in the city and 11,541 in the suburbs. The total figures show an increase of 218 on those for 1905, made up of a decrease of 155 in the city and an increase of 373 in the suburbs. The actual number of births was the highest in any year since 1892. The rate of 26·18 per 1000 of population, is slightly lower than in 1905, but otherwise is higher than in any year since 1897. The marriages were the largest on record and numbered 5248, an increase of 308 over 1905. The rate was 9·82 per 1000 of population, which was nearly up to the rates for 1901 and 1902, which

were the highest since 1888. The deaths numbered 5703, of which 3069 were of males and 2634 of females. The number is 67 less than in 1905, and the rate, 10·68 per 1000 of population, is the lowest on record. The number of deaths of children under one year of age was 1176, or 8·4 per cent. of total births, which may be regarded as most satisfactory, seeing that the average for the last ten years was 11·8 per cent. The rate in 1905 was also very low, but for 1906 is the lowest ever experienced.

Sydney Water-supply.

A report on the water at the Cataract Dam, one of the sources of the Sydney supply, by Dr. E. S. Stokes, medical officer of the water and sewage board, shows that the water contains an excessive amount of organic matter of vegetable origin.

Medical Inspection of Schools.

The Minister of Public Instruction, New South Wales, has approved of a scheme for the medical inspection of the schools under the control of his department. It is proposed to appoint Mr. R. E. Roth, the present medical officer of the department, to undertake the work of inspecting the schools in the metropolitan and submetropolitan districts. The subjects to be specially regarded are:—

1. Defects of eyesight, mainly myopia, hypermetropia, and astigmatism.
2. Defects of hearing with the related defects, such as adenoids, enlarged tonsils, and throat affections.
3. Other physical defects in their relation to physical training.
4. Infectious diseases.
5. Anthropometric survey, mainly with regard to height and weight.
6. School hygiene, ventilation, lighting, drains, and closets.

The assistance of the teachers will be largely made use of in testing vision, anthropometric observation, &c. The medical inspector will meet the teachers regularly to instruct them and secure their intelligent coöperation.—The Education Department of Tasmania has appointed Dr. Gertrude Halley as medical inspector of schools.

Hospital Affairs.

During last year 74,637 persons, 14,826 being in-patients, received treatment at the five metropolitan hospitals of Sydney, divided as follows: Sydney Hospital, 33,030; Royal Prince Alfred Hospital, 17,124; Coast Hospital, 2956; St. Vincent's Hospital, 12,981; and the Royal Alexandra Hospital for Children, 8546. They were attended by a staff of 128 medical men, 315 nurses, and 193 other attendants and servants, irrespective of the clerical staffs. Besides these the Women's Hospital, the Lewisham Hospital, North Shore Hospital, and other suburban hospitals gave medical and surgical treatment to a large number of patients. The total cost of maintenance at the five hospitals mentioned was £81,615. Of this sum the Government contributed £51,221. The number of operations under anæsthetics was: in Sydney Hospital, 2759; in Prince Alfred Hospital, 3255; in the Coast Hospital, 450; in St. Vincent's Hospital, 1049; and in the Children's Hospital, 871.

Treatment of Inebriates.

The Government has finally decided to abandon the scheme of establishing an inebriates' institution on the islands on the Hawkesbury river, on which a large sum has already been spent, and to set apart a portion of Darlinghurst gaol as an institution under the Inebriates Act for the treatment of habitual drunkards.

Friendly Societies.

At the nineteenth annual meeting of the Sydney United Friendly Societies' Dispensary and Medical Institute delegates from 122 lodges attended. The report stated that the number of lodges affiliated with the institute was 131, with a membership of 10,369. During the year 1906 143,994 prescriptions had been dispensed to 86,408 patients. Financially the progress for the past 12 months had been very satisfactory. Subsequently a congress was held of representatives of friendly societies' dispensaries and medical institutes, at which it was decided to form an association for the mutual benefit and protection of such institutions—presumably against the medical profession. Difficulties have arisen between the medical officers of the lodges in the eastern suburbs and the friendly societies, but it is understood that amicable arrangements are proceeding.

Typhoid Fever at Kew Asylum for the Insane.

An outbreak of typhoid fever has occurred at the hospital for insane at Kew, Melbourne. Ten cases, with one death, have been reported. The cases have so far been limited to one ward and the report of the local health officer states that the sanitary arrangements are faulty.

Association of Health Officers.

The Board of Health of Victoria recently recommended that health officers should be appointed for combined districts and give their whole time to their duties instead of, as at present, being engaged in private practice. The retiring president of the Victorian branch of the British Medical Association in an address advised similarly, criticising the manner in which the duties of health inspection are now carried out. The municipal health officers have decided to defend themselves and have formed an association for that purpose, with Dr. Jamieson, city health officer of Melbourne, as president.

Alleged Consumption Cure.

Reference has been previously made to an action brought against the agent of a company selling "tuberculozque," an alleged cure for consumption. The case was tried at the Sydney quarter sessions on Feb. 19th, and the jury brought in a verdict of "Not guilty."

Dental Congress.

On Feb. 4th the First Australian Dental Congress was opened at Sydney. There was a large attendance of dentists from all the States of Australia. The President, Dr. Burns, was in the chair, and the inaugural proceedings were opened by the Chief Secretary of New South Wales, who welcomed the Congress to that State both on behalf of the Government and as a citizen. Professor Anderson Stuart welcomed the Congress on behalf of the University of Sydney, in whose buildings it met, and sketched the progress of dental education in Sydney. A number of technical papers was submitted and the whole Congress was a great success.

Fatal Accident to a Medical Man.

Mr. L. F. Wells of Eaglehawk, Victoria, met with an unfortunate accident on March 6th, being thrown out of his buggy. He sustained a fracture of the base of the skull and died on the 9th at the age of 44 years.

March 12th.

Obituary.

DAVID LOWSON, M.D. ABERD.

Dr. David Lowson of Albion-street, Hull, who died in London on March 15th, was a much respected practitioner in Hull and the intelligence of his decease evoked widespread sympathy among all classes of the population in that city. His health had not been satisfactory for some months past. In November, 1906, while operating for appendicitis, he pricked his finger and contracted septic poisoning from which he was dangerously ill for some time. After a short holiday he partially resumed work about the end of the year, but it was evident that his health was not fully restored. About the beginning of February he left home again for a prolonged rest and while in London he had an attack of pleurisy which unfortunately developed into empyema. For this the chest was freely opened and drained, but his strength gradually failed, and after lingering for three weeks his life ebbed away.

Dr Lowson was a native of Aberdeenshire and was born in 1850. He received his medical education at the University of Aberdeen, where he had a very distinguished career as a student and graduated with highest honours in 1871. After becoming qualified he was appointed demonstrator of anatomy and assistant to the professor of anatomy in the university, and in this position he acquired that thorough knowledge of anatomy for which he was noted in after life. On leaving Aberdeen he obtained the post of house surgeon at the Children's Hospital, Manchester, and then that of resident surgeon at the Huddersfield Infirmary. He afterwards commenced private practice in Huddersfield and was beginning to make his mark as a surgeon when he contracted a severe attack of diphtheria from sucking a blocked tracheotomy tube. By this act of self-sacrifice he saved his patient's life and was awarded the Albert medal, but his health suffered so severely that he was obliged to give up his practice and was incapacitated for work for more than 12 months. When his health was fully restored he settled in Hull, now about 25 years ago, and was soon afterwards appointed surgeon to the

Hull and Sculcoates Dispensary. On subsequently becoming surgeon to the Hospital for Diseases of Women and Orthopædics he had an opportunity of still further showing his ability as a surgeon, especially in abdominal and pelvic diseases. His exceptional talents now began to be recognised and in 1891 he was appointed assistant surgeon to the Hull Royal Infirmary, becoming full surgeon in 1898. This appointment he held up to the time of his death and notwithstanding the increasing demands of his private practice he continued to give much time and attention to the work of the infirmary, where he was an almost daily visitor. He was much and deservedly trusted by his medical brethren, and his advice and assistance were extensively sought by members of the profession, both in the city and in the neighbouring counties.

As a surgeon he was painstaking and thorough, a master in diagnosis, and he possessed an encyclopædic knowledge of the literature of his subject. He was a brilliant and careful operator and was at his best in a serious operation, especially when any unexpected difficulty presented itself. He seemed to foresee and be prepared for all emergencies and was always cool and calm, clear of head, and steady of hand, even under the most perplexing conditions. He was free from fads and prejudices, with a mind ever open to new impressions, ready to receive suggestions, and to adopt new methods when reasonable. He was a man of retiring disposition, shrinking from publicity in any form, singularly unselfish and considerate to others, unassuming and modest in his estimate of his own abilities. His nature was kindly and sympathetic and many of his poorer patients can tell of deeds of kindness performed by him in secret and unostentatiously, known only to the recipients. Though he took no part in public affairs except in so far as appertained to his professional work, his death leaves a gap in Hull and the neighbourhood which it will be difficult to fill.

The funeral service, which was held in Holy Trinity Church, Hull, on March 20th, was attended by a large and representative gathering of all classes, including many members of the medical profession from the city and the neighbourhood. Dr. Lowson leaves a widow and one son to mourn their loss.

FERDINAND ALBERT PURCELL, M.D. R.U.I., M.R.C.S. ENG.

Dr. F. A. Purcell, who died recently in his seventieth year at his residence, 7, Manchester-square, London, W., was a surgeon of exceptional ability. He graduated as M.D. at the Royal University of Ireland in 1863 and was for a short time physician to the Cork Fever Hospital and House of Recovery and medical officer to the Douglas dispensary district in the same county. In 1865 he was admitted M.R.C.S. Eng. In London he held the appointments of physician to the Westminster General Dispensary and medical officer of the St. Marylebone Provident Dispensary. He was for many years surgeon to the Cancer Hospital, Brompton, and was the first surgeon in Great Britain to perform vaginal hysterectomy for cancer of the uterus. A full account of his original operation, contributed by himself, was published in THE LANCET of Jan. 31st, 1885, p. 200. It was performed at the Cancer Hospital, Brompton, on Sept. 23rd, 1884. Some use was made of the galvanic écraseur. The patient, who was married and 40 years of age, was discharged from the hospital thoroughly convalescent on Nov. 4th. His fourth successful operation of this kind is fully described in THE LANCET of August 27th, 1887, p. 411. Dr. Purcell was a member of the council of the Medical Defence Union and was a regular attendant at its meetings, taking a lively interest in its welfare. He was a Foundation Fellow of the British Gynæcological Society and contributed several papers of interest and importance at its meetings. Dr. Purcell published a treatise entitled "Cancer, its Allies and other Tumours"; he also contributed several papers on cancer and other subjects to the medical periodicals.

JAMES THOMAS RUDALL, F.R.C.S. ENG.

One by one the pioneers and old identities of the profession in Australia are disappearing and one of the foremost passed away on March 4th in the person of James Thomas Rudall of Melbourne at the advanced age of nearly 80 years. He took his M.R.C.S. diploma in 1854 and almost immediately joined the Royal Navy and was appointed assistant surgeon to H.M.S. *Talbot*, which joined the last expedition to the Arctic regions in search of Sir John Franklin. On his return he resigned his commission and studied for the Fellowship examination of the Royal College of Surgeons of England, which he passed in 1857. He then sailed for Melbourne in 1858 and soon attained a leading position as a surgeon and also as a specialist in diseases of the eye, ear, and throat. He was surgeon to the Melbourne Hospital for many years and later to the Alfred Hospital. He was also ophthalmic surgeon to the Blind Asylum and was on the medical staff of the Deaf and Dumb Asylum. He was an excellent French and German scholar and always kept himself informed in the current medical literature in those languages, as well as in English, and translated several German medical works. Mr. Rudall was a patient and indefatigable worker, keenly interested in advancing the scientific sides of surgery and ophthalmology, and a good pathologist as well as a practical surgeon. He was for many years a member of the Medical Board of Victoria. Besides his professional interests he was very fond of music, especially orchestral music, performing himself on several instruments, and was connected for years with most of the musical societies in Melbourne. He leaves a widow, a son (Dr. J. F. Rudall), and a daughter.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Adolph Gad, director of the Copenhagen Polyclinic for Eye Diseases, at the age of 60 years.—Dr. Alexander Ritter von Weismayr, a Vienna laryngologist and specialist in chest diseases, at the age of 39 years.—Dr. G. B. Fowler, professor of medicine in the New York Post-Graduate Medical School.—Dr. G. W. Newton, assistant professor of gynæcology in the Chicago College of Physicians and Surgeons.—Dr. Ottmar Rosenbach of Berlin, after a long illness. He was formerly extraordinary professor of medicine in Breslau, but went to Berlin in 1896. He was a voluminous writer on medical matters.—Dr. Gustav von Hirsch, body-surgeon to the Czar, at the age of 79 years.—Dr. Galezowski, the eminent Paris ophthalmologist, at the age of 73 years. He was a Pole by birth and studied medicine in St. Petersburg, but settled in Paris in 1859.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the quarterly examination of the Conjoint Examining Board of the above Colleges in Practical Pharmacy, just completed, the following gentlemen were approved:—

Charles James Aveling, University College and London Hospitals and private; Horace Simeon Berry, M.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Robert Dixon Brown, St. Thomas's Hospital; Herbert Edward Cockcroft, Manchester University and private; Henry Frank Collins, Madras and Edinburgh Universities; Kaye Farquhar Rashell Davison, Westminster Hospital and private; Campbell William de Morgan, St. Mary's Hospital and private; Edwin Charles East, Birmingham University and private; Harold Harry Baily Follit, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Arthur Leslie Foster, Guy's Hospital; Frederick Holcombe Fuller, L.D.S., Guy's Hospital; Charles William Gee, Liverpool University and private; Alexander Kennedy Glen, St. Mary's Hospital and Glasgow University; Morrice Greer, Liverpool University; Bernard Haigh, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Alexander Todd McCaw, New Zealand University and London Hospital; John Charsley Mackwood, London Hospital and private; John Morris, Middlesex Hospital; John Herbert Owens, London Hospital; Gerard Lyne Parsons, Westminster Hospital and private; Benjamin James Phillips-Jones, Edinburgh University; Cardiff and St. Mary's Hospital; Hubert Pinto-Leite, B.A. Cantab., Cambridge and St. George's Hospital; Edward John Joseph Quirk, Charing Cross Hospital; Percy Charles Raiment, London Hospital and private; David Davey Rosewarne, New Zealand University and St. Mary's Hospital; Ralph Gillespie Smith, Charing Cross Hospital; Sumner Hugh Smith, King's College Hospital and private; Cecil Gordon Sprague, Guy's Hospital; Richard William Starkie, Manchester University; Garnet Wolsley Twigg, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Bernard Varvill, London Hospital and private; Victor Vesselovsky, St. Thomas's Hospital; Charles Edward Waldron, London Hospital; Jocelyn Langton Waller, St. Mary's Hospital; George Henry Watson, London Hospital and private; John Nuthall Watson, Guy's Hospital and private; and John Samuel Williamson, St. Bartholomew's Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having completed the Final Examination of the Conjoint Board in Medicine, Surgery,

and Midwifery, and having now complied with the by-laws, the Council of the above College conferred the Diploma of Member upon them on April 11th:—

Robert Dixon Brown, St. Thomas's Hospital; Charles Grange McGreer, M.D., Queen's University, Kingston, of Middlesex Hospital; and Charles Edward Waldron, London Hospital.

UNIVERSITY OF GLASGOW.—The following have passed the First Professional Examination for the degrees of M.B. and Ch.B. in the subjects indicated (B., Botany; Z., Zoology; P., Physics; and C., Chemistry):—

Thomas Adam, M.A. (B., Z., C.); James Browning Alexander (Z., P.); John Campbell Hill Allan (C.); James Wallace Anderson (B., Z., P., C.); William Larmour Anderson (P., C.); Charles Auld (C.); Charles Averill (B., P.); Robert Brown Bain (B., C.); Alexander Baird (C.); Thomas Stewart Barrie (Z., C.); Archibald M'Allister Blackwood (Z., C.); John Bower (B., C.); David Sands Brough (Z., C.); James Turner Brown (Z., C.); Robert Archibald Brown (B., C.); Angus Dugald Buchanan (P., C.); Charles Cameron (Z., C.); John Cameron (C.); John Campbell (Z., C.); George Wilson Clark (P., C.); George Cochrane (Z., C.); James Headrick Coulter (P.); John Nairn Dobbie (C.); Alexander Moffatt Dunlop (P.); William Deanburn Dunlop (B., P.); Kinloch Falconer (Z., C.); Andrew Scobie Findlay (P.); Hugh Forrest (Z., C.); Leander Lowrie Fyfe (Z., C.); Archibald Gardner (Z., C.); John Joseph Gibb (Z., C.); John Gibson (Z., C.); John Radcliffe Grice, M.A. (Z., C.); Andrew Smith Hannay (B., P.); Alexander Gibson Henderson (Z.); Peter Henretty (B.); Andrew Gray Holms (Z., C.); James Johnstone (Z., C.); William Johnstone (B., Z., P., C.); Walter Haddow Kay (P.); Felix Arthur Kerr (Z.); Charles Joseph Kirk (Z., P.); Ian Macdonald (C.); Alexander Mackay (C.); Balfour M'Kean (C.); John Gladstone Mackenzie (P., C.); James David Mackinnon (Z., C.); Murdo Mackinnon (B., Z.); Angus Keith Mackinven (Z.); Andrew Bruce MacLean (Z.); Archibald M'Leod (B., C.); William M'Murray (Z., C.); William Wyllie MacNaught (Z., C.); George Hanson M'Robert (B.); John Pearson M'Vey (Z., C.); Alexander Thomson M'Whirter (P.); Malcolm Manson (Z.); Francis William Martin (B., Z., P.); Farquhar Matheson (Z., C.); James Matheson (Z., C.); Osborne Henry Mavor (P., C.); Campbell Lamont Miller, M.A. (B., Z.); Archibald Mitchell (P., C.); John Mitchell (P.); Neil Morison (Z.); Andrew Muir (Z., C.); Michael John Murray (C.); Hugh Loudon Neil (Z., C.); Hugh Paterson (Z., C.); James Eric Paterson (Z., C.); Richard Reid Kirkwood Paton (C.); John Penman (P.); Arthur Poole (C.); James Francis Quigley (Z., C.); Alexander Rae (Z.); Henry Charles Deans Rankin (Z.); John Livingstone Scott (C.); William Logan Scott (B., Z.); William Sneddon (C.); Malcolm Sommerville (B., P., C.); Roderick Alexander Steven (P., C.); John Alexander Stewart (Z., P.); John Norman Sutherland (P., C.); William Rowland Taylor (B., P.); James Alexander Hamilton Telfer (Z., C.); William Tudhope (Z., C.); Gordon Alexander Valentine (Z., C.); Alexander Gold Waddell (B., P., C.); Alexander Guthrie Semple Wallace (Z., C.); Thomas Walmsley (Z., C.); Tom Waterhouse (B., Z.); Thomas Whitelaw (P., C.); James Williamson (P., C.); Alexander Stewart Wilson (Z., C.); Archibald Wilson (Z., C.); Douglas Wilson (Z., C.); George Jackson Wilson (C.); Hugh Gilmer Wilson (P., C.); William Long Wilson (Z., C.); and John Crawford Wood (P.).

Women.—Mary Alexander, M.A. (C.); Agnes Barr Auchencloss (C.); Mary Alexina Annette Beard (B., Z.); Muriel May Curtis (Z.); Isabel Inglis (P., C.); Barbara Macgregor (Z., C.); Katherine Stewart Macphail (P.); Lucy MacBean Ross (Z., C.); Barbara Grace Rutherfurd (P., C.); Christina Hamilton Shearer (C.); Barbara Sutherland (B., Z., C.); Marion MacBeath Sutherland (Z., C.); Mary Buchanan Thomson (C.); and Margaret Walker (Z., C.).

The following have passed the Second Professional Examination for the degrees of M.B. and Ch.B. in the subjects indicated (A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics):—

David Rutherford Adams (P.); Archibald Aitchison (A., P.); John Andrew Aitken (A.); William Shanks Alexander, M.A. (M.); James George Anderson (M.); Alexander Ballantyne, M.A. (A., M.); David Barbour (A., P., M.), Edgar Barnes, M.A. (P., M.); Arthur Munby Bayne (M.); Emile Augustine Cameron Beard (A.); Charles Stewart Black (P.); Douglas Morris Borland (A., P.); Charles Brash (M.); Morris William Broudy (A., P., M.); Carl Joseph Barrett Buchheim (A., P., M.); John Adam Gib Burton (M.); John Cameron (A.); Andrew Hood Clark (A., P., M.); Alexander Beck Cluckie (A.); James Cook Coalburn (M.); Rutherford David Cramb (P., M.); Charles Duguid, M.A. (A., P.); James Kirkwood Dunlop, M.A. (A., P., M.); Donald Fisher (A., P., M.); George Fletcher, M.A. (P., M.); Thomas Scott Forrest (M.); Robert Dunlop Black Frew (A.); Robert Gale (A., P., M.); William Ernest Gemmell (A., M.); Alexander Gordon Gilchrist (A., P., M.); Edward George Glover (A., P.); Robert Dunlop Goldie (A., P.); George Stevenson Gordon (A., P., M.); Edward O'Driscoll Graham (A.); John Granger (A., P.); Kennet Charles Gordon Gray (A., P., M.); Albert William Gregorson (P., M.); George Haddow (M.); William Hamilton (A., P.); James Harper, M.A. (A., P., M.); John M'Lean Hendry (M.); William Howie (A., M.); Bentley Moore Hunter (A., P., M.); John Parlane Kinloch (A., P., M.); David Neilson Knox (A., P.); William Thomson Lindsay (A., P., M.); William M'Adam, M.A. (A., P.); James Macallan (A.); William Charles Macartney (P., M.); Angus Macaulay (A.); Robert M'Carlie (P., M.); William M'Connell (A., P., M.); Donald M'Dougall (A., P.); Donald M'Intyre (P., M.); Robert Buchanan Forbes M'Kail (A., P., M.); William Maxwell M'Kie (A., P.); Thomas M'Kinlay (A., P.); Alexander M'Kinnon (A.); Donald M'Kinnon (A., P.); William Alexander Maclennan (M.); George Macleod, M.A. (A., P., M.); James M'Millan M'Millan (A.); John William M'Nee (A., P.); John Hart M'Nicol (A. P. M.); Allan M'Pherson (A.); Murdo M'Kenzie MacRae (A.); Andrew Maguire (M.); Thomas Marlin (A., P.); William Aubrey Layard Marriott (M.); Donald Meek (P.); Angus Miller (M.); Hyacinth Bernard Wenceslaus Morgan (A. P.); John M'Intosh Morgan (A., P.); Arthur Alexander Murison (A.); Archibald Naismith (P.); Frederick Lewis Napier (P., M.); William Niccol (P., M.); Charles Mill Nicol (A., P., M.); Watson Noble (A.); John Robertson (M.); Hugh George Robinson (A., P., M.); Alfred Roemmele (A., P., M.); William Wilson Rorke (A., P., M.); William Rutherford (A., P., M.); William Wilkie Scott (P., M.); Allan Semple (A.); William Alexander Sewell (A., P.); James Johnston Sinclair (A., P., M.); James Stewart Somerville (P.); Richmond Steel (P.); William Stevenson (A.); Alexander Stewart (A., P., M.); Arthur Ford Stewart (A., P.); Robert Wilson Sutherland (A., P., M.); David Campbell Suttie (A., P., M.); Robert Sweet (A., P.); Duncan Macnab Taylor (A., P., M.); Walter Telfer (A.); Aidan Gordon Wemyss Thomson (A., P.); Arthur Turnbull, M.A. (M.); James Lachlan Ure (A., P.); William Samuel Waterhouse (A., P.); James Brown Whitfield (A., P.); John Alexander Wilson (M.); John Youngson Wood (A.); David Yellowlees (A., P.); and Douglas Young (A., P.).

Women.—Christina Barrowman (P.); Honoria Somerville Keer (A., P.); Mary Cochran Mitchell (A., P., M.); Margaret Muir (P.); Jessie Deans Rankin (M.); Margaret Eason Robertson (A., P., M.); Olive Robertson (M.); Margaret Elizabeth Rutherfurd (A., P., M.); Jemima Wallace (P.); and Ethelwyn Mary Walters (A., P.).

The following have passed the Third Professional Examination for the degrees of M.B. and Ch.B. in the subjects indicated (P., Pathology; and M., Medical Jurisprudence and Public Health):—

David Anderson (P.); William Anderson (P., M.); Thomas Archibald (P.); William Barr (P., M.); Charles Bennett (P., M.); John Blakely (P.); John Lindsay Boyd (P., M.); James Nimmo Brown, M.A. (P.); William Barrie Brownlie (P.); Hector Mackay Calder (P., M.); James Carrick (P., M.); Matthew Ignatius Thornton Cassidy (P.); Donald Clark (M.); Donald James Clark (P.); James Cook (P., M.); John Cruickshank (P., M.); Neilson Davie (P.); Walter Dawson (M.); James Cowie Dick (M.); Arthur Drummond Downes, M.A. (P., M.); William Miller Fairlie (P., M.); Walter Gilmour (P., M.); Josiah Stranaghan Harbinson (P., M.); Michael Harkin (P., M.); Thomas Harkin (M.); John Mitchell Henderson (P.); Stephen John Henry (P., M.); Benjamin Hutchison (P., M.); John Lang (P., M.); Frank Crombie Macaulay (P.); Joseph Glaister M'Cutcheon (M.); Coll Macdonald (P., M.); William M'Kendrick (P.); Murdo Duncan Mackenzie (P.); Thomas Cooper Mackenzie (M.); Francis William Mackichan (P.); William Campbell Mackie (P.); James Walter M'Leod (P., M.); John MacMillan (P., M.); Peter Russell M'Naught (P., M.); Donald Irvine M'Naughtan (P., M.); David Manson (P., M.); Frank Needham Marsh (P.); William Matheson (P., M.); Kenneth Chisholm Middlemiss (P., M.); Allan Frederick Miller (P.); Robert M'Kenzie Morison, M.A. (P., M.); James Muir (P., M.); William Aikman Muir (P.); Archibald Campbell Munro (P., M.); Charles Sutherland M'Kay Murison (P.); Albert Rutherford Paterson (P., M.); Adam Patrick, M.A. (P., M.); Ralph Montgomery Fullarton Picken, B.Sc. (P.); Murray Purvis (P., M.); Edward Quigley (P., M.); Richard Rae (P.); Henry Nimmo Rankin (P.); Nicol M'Nicoll Rankin (P., M.); Murdoch Mann Rodger (P.); Neil Campbell Scott (P., M.); James Brown Sim (P.); James Alexander Stenhouse (P.); Donald Stewart (P., M.); Hugh Cochrane Storrie (P.); David Taylor (P.); John Sheddon Thomson (P., M.); Robert Macnair Walker (P., M.); Thomas Charles Dalrymple Watt (P., M.); Thomas Macknight Watt (M.); Hugh White (P.); David M'Gruther Wilson (M.); William Mitchell Turner Wilson (P., M.); and Hugh Young (P.).

Women.—Margaret Baird Sproul Darroch (P.); Mabel Foley (P., M.); Annie M'Crorie (P.); Winifred Margaret Ross (P.); and Jessie Caple Russell (P., M.).

At the recent professional examinations for the degrees of M.B. and Ch.B. the following candidates passed with distinction in the subjects indicated:—

First Examination.—In Zoology and Chemistry: Thomas Stewart Barrie, William M'Murray, and James Eric Paterson. In Physics and Chemistry: William Larmour Anderson. In Botany: Charles Averill. In Zoology: Thomas Adam, M.A., James Turner Brown, Charles Cameron, Kinloch Falconer, John Radcliffe Grice, M.A., James David MacKinnon, Andrew Bruce Maclean, William Wyllie MacNaught, Farquhar Matheson, James Alexander Hamilton Telfer, and Alexander Stewart Wilson. In Physics: Andrew Scobie Findlay and John Mitchell. In Chemistry: Alexander Baird, John Campbell, Malcolm Sommerville, William Tudhope, and Gordon Alexander Valentine.

Second Examination.—In Physiology: Charles Duguid, M.A., Donald Fisher, George Fletcher, M.A., William M'Adam, M.A., John Hart M'Nicol, Mary Cochran Mitchell, Margaret Eason Robertson, Alfred Roemmele, William Wilson Rorke, Richmond Steel, David Campbell Suttie, and James Lachlan Ure. In Materia Medica and Therapeutics: George Macleod, M.A.

Third Examination.—In Pathology and in Medical Jurisprudence and Public Health: John Cruickshank and Robert Macnair Walker. In Pathology: Charles Bennett, William Barrie Brownlie, Peter Russell M'Naught, and Ralph Montgomery Fullarton Picken, B.Sc. In Medical Jurisprudence and Public Health: Benjamin Hutchison, Archibald Campbell Munro, and Adam Patrick, M.A.

UNIVERSITY OF ABERDEEN.—On April 9th the following degrees in medicine were conferred:—

Doctor of Medicine (M.D.).—*Alexander Callam, M.B., Ch.B., John Conry, M.B., C.M., †Arthur Wellesley Falconer, M.B., Ch.B., and Alexander Thomson, M.B., C.M.

*Commendation for thesis. † Honours for thesis.

Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.).—*With Second-class Honours:* *Norman Stephen Gilchrist, M.A., and *Robert Williamson Asher Salmond.—Williamina Abel, David Anderson, M.A., William Angus, James Wm. Barnett, Agnes Valentine Baxter, M.A., B.Sc., John Stott Beedie, B.Sc., James

Alex. Macdonald Clark, Andrew Leslie Edmund Filmer Coleman, James Alex. Davidson, James Donaldson, Robert Philip Garrow, Herbert William Glashan, Leighton Hill Hay, James Hunter, Adam Hutton, Harry Middleton, George Mitchell, James Elmsly Mitchell, John Phimister Mitchell, John Hay Moir, Alfred James Pirie, James Robertson, M.A., *Alexander Hugh Skinner, M.A., John Paton Stuart, Frank Pearce Sturm, James Ettershank Gordon Thomson, and James Ingram Pirie Wilson.

* Passed Final Professional Examination "With Distinction."

Note.—Walter James Dilling has passed all the examinations but will not graduate until he attains the necessary age.

The following gentlemen have been awarded the Diploma in Public Health:—

Alexander Grant Anderson, Frederick Arthur Foy, John Jenkins, Arthur Kellas, and Forbes Jackson Stuart.

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Bing has been recognised as *privat-docent* of Nervous Diseases and Dr. Stäubli as *privat-docent* of Internal Medicine.—*Berlin:* Dr. Passow has been appointed Professor of Otology and Dr. Claude du Bois-Reymond, *privat-docent* of Ophthalmology, has been granted the title of Professor. Dr. Richard Müller and Dr. Bischoff have been granted the title of Professor.—*Bordeaux:* Dr. Villar, *agrégé*, has been appointed Professor of Operative Medicine in succession to Dr. Masse.—*Breslau:* Dr. Wilhelm Ercklentz, *privat-docent* of Medicine, has been granted the title of Professor.—*Buenos Ayres:* Dr. Angel M. Centeno has been appointed Professor of Children's Diseases in succession to the late Dr. Blancas.—*Chicago (North-Western University Medical School):* Dr. D'Orsay Hecht has been appointed Professor of Neurology, Psychiatry, and Forensic Medicine.—*Cracow:* Dr. Josef Lilkowski and Dr. Erwin Miesowicz have been recognised as *privat-docenten* of Medicine.—*Gratz:* Dr. Franz Fuhrmann has been recognised as *privat-docent* of Bacteriology.—*Greifswald:* Dr. Erich Kallius of Göttingen has been appointed Extraordinary Professor of Anatomy in succession to Dr. Bonnet, who retires.—*Halle:* Dr. Harry Liefmann has been recognised as *privat-docent* of Hygiene. Professor Nebelthau has been obliged by illness to resign his appointment as Director of the Medical Policlinic.—*Kansas City:* Dr. Price has been appointed to the chair of Surgery.—*Kiel:* Dr. Heinrich Schade has been recognised as *privat-docent* of Internal Medicine.—*Königsberg:* Dr. Emil Krückmann of Leipsic has been appointed Professor of Ophthalmology in succession to Dr. Kuhnt who goes to Bonn. Dr. E. Braatz, *privat-docent* of Surgery; Dr. O. Weiss, *privat-docent* of Physiology; and Dr. A. Ellingee, *privat-docent* of Medical Chemistry, have been promoted to Extraordinary Professorships.—*Leipsic:* Dr. Martin Hohfeld has been recognised as *privat docent* of Children's Diseases.—*Lyons:* Dr. Quiart has been appointed Professor of Parasitology and Medical Natural History.—*Marburg:* Dr. Römer, who is going to Buenos Ayres, has been granted the title of Professor.—*Oporto:* Dr. Carlos A. de Lima has been appointed Professor of External Pathology in succession to Dr. A. J. de M. Caldas who retires.—*Rome:* Dr. Augusto Tamburini of Modena has been appointed Professor of Psychiatry.—*St. Petersburg (Medical Institute for Women):* Dr. A. Kadian has been appointed Professor of Surgery and Dr. Verkhowski Professor of Otology and Laryngology.—*Turin:* Dr. Alessandro Donati has been recognised as *privat docent* of General Pathology.—*Vienna:* Dr. Rudolf Kraus, *privat-docent* of General and Experimental Pathology, and Dr. Ludwig Ungar, *privat-docent* of Pædiatry, have been granted the title of Extraordinary Professor.—*Zürich:* Dr. Martin Benno Schmidt of the Düsseldorf Pathological Institute has been appointed Professor of Pathology in succession to Dr. Paul Ernst who goes to Heidelberg.

DONATIONS AND BEQUESTS.—Alderman Sir Marcus Samuel has offered to give £2000 towards the erection of the new theatre and the anæsthetic room at the West Kent Hospital, provided that an equal sum is contributed for their endowment.—By the will of Mr. Thomas Aitken of Edinburgh £1000 are left to the Leith Hospital, and like sums to the Longmore Hospital for Incurables, Edinburgh, and the Royal Edinburgh Hospital for Sick Children.—The executors of the late Mr. J. L. Toole have made a grant of £500, less duty, to the Royal Hospital for Incurables, Putney Heath; and "Anon." has given £500, in the hope that five others will follow his example, to the chairman's list at the festival dinner of the institution to be held at the Whitehall Rooms on May 16th.—By the will of Miss Anne Robinson Boulton of Haseley Court, Tetsworth, Oxford, she bequeathed £4000 to King Edward's Hospital Fund and £1500 to other charitable objects.—The following are among bequests to Manchester charities made by the late Mr. James Hodge of Greenheys: £500 to the Manchester Royal Infirmary, £250 to the Manchester Southern Hospital, and £250 to the Northern Counties Hospital for Incurables.—Sir Alfred Jones has repeated his contribution of £250 to this year's funds of the Colonial Nursing Association, with a warm expression of his appreciation of the successful work done by the association in providing trained nurses for the British colonies and dependencies and other British communities abroad.—Under the will of the late Lord Allendale the sum of £5000 has been left to St. George's Hospital.

UNIVERSITY OF BIRMINGHAM.—The following post-graduate lectures of the Faculty of Medicine will be delivered during the summer session in the medical lecture theatre on Thursdays at 4 o'clock, the dates, subjects, and lecturers being as follows:—May 23rd, "The Widal Reaction: its Present Position and Value," by Professor R. F. C. Leith; May 30th, "The Bacterial Diagnosis of Diphtheria," by Dr. C. J. Lewis; June 6th, "Opsonins," by Dr. J. Miller; and June 13th, "The Value of Preventive Methods against Infectious Diseases," by Dr. John Robertson. Members of the medical profession and students of medicine are invited to attend.

DEATH OF A CENTENARIAN.—Miss Sarah Millward, a lady of independent means, died recently at Fiskerton, Nottinghamshire, in her 101st year. She was born at Stilton in Huntingdonshire in December, 1806, and was one of four sisters, all of whom were long-lived. It is stated that she was in the habit of walking about unaccompanied until a month ago.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At a stated meeting of the President and Fellows of the Royal College of Physicians of Ireland held on Friday, April 5th, Mr. William Roche, L. & L.M. K.Q.C.P.I., was admitted to the Membership of the College.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Parochial Medical Officers (Scotland) Bill.

The Parochial Medical Officers (Scotland) Bill, which was introduced in the House of Commons by Mr. J. CATHCART WASON before the Easter holidays, has been printed. It is explained in the memorandum to the Bill that under the Poor-law (Scotland) Act, 1845, medical officers of poorhouses cannot, under a decision of the court of session, be removed from office without the consent of the Scottish Local Government Board. On the other hand, outdoor medical officers may be dismissed at short notice by their respective parish councils without reason assigned. It is proposed by Mr. WASON'S Bill to assimilate the law of Scotland to that of England and Ireland and make the consent of the Local Government Board necessary for the dismissal of all parochial medical officers. The Bill is supported by Mr. AINSWORTH, Mr. HARMSWORTH, Mr. JOHN DEWAR Mr. CROMBIE, Sir HENRY CRAIK, Mr. GULLAND, Viscount DALRYMPLE, Major ANSTRUTHER GRAY, Mr. YOUNGER, Mr. CROSS, and Mr. MITCHELL-THOMSON.

Medical and Dental Companies.

The House of Lords reassembled on Monday after the Easter holidays. Amongst the Bills standing on the notice paper of the House for advancement are the Prohibition of Medical Practice by Companies Bill and the Dental Companies (Restrictions on Practice) Bill. It is the intention of Lord HYLTON to move the second reading of both measures on Monday, April 29th.

The Registration of Nurses.

Mr. CLAUDE HAY has introduced into the House of Commons his Bill to provide for the better training and registration of nurses and for the voluntary registration of private nursing homes.

Society of Apothecaries of London Bill.

The Society of Apothecaries of London Bill, which has been promoted as a private Bill, has received a third reading and been passed in the House of Lords.

School Hygiene.

The general report of Dr. W. LESLIE MACKENZIE on the teaching of school and personal hygiene to students in training as teachers in Scotland has been laid upon the table of the House of Commons.

The Feeding of School Children.

The Education (Provision of Meals) (Scotland) Bill, which has been promoted by Mr. J. RAMSAY MACDONALD and the members of the

Labour Party, came up for consideration before the Standing Committee on Law of the House of Commons on Tuesday. The adjournment of the proceedings was moved on the ground that confusion might result if by the amendment to the Standing Orders the Standing Committee on Law were abolished before the committee stage of the Bill was completed. In the course of the discussion Mr. SINCLAIR reminded the committee that the clauses in a Bill introduced by the Government also contained provisions for the feeding of school children in Scotland. The Government preferred its own Bill, but it had no objection that both Bills should be sent to the new Standing Scottish Committee. Ultimately the proceedings were adjourned. Later in the day the Speaker gave his ruling that the present Standing Committee on Law was competent to conclude the consideration of this Bill and other measures committed to it before its functions were exhausted.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 10TH.

A Dilapidated School and Children's Health.

Mr. JEREMIAH MACVEAGH asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been called to the condition of the schoolhouse at Barnmeen, county Down, and to the fact that no less than four inspectors of the National Board had reported it to be old, unsuitable, badly lighted, and imperfectly ventilated; whether he was aware that the only means of ventilation was by the door, that the window frames were decayed and would not hold the glass, that the structure is built partly of clay, and that the eyesight and general health of the children have been impaired; whether he was aware that the manager of the school, the Rev. T. Gailery, had been endeavouring for years to have a new school provided near to the present school, but that the Commissioners of National Education had refused to sanction the building of a new school on the only site available in the whole district; and whether, having regard to the opinion of the people of the neighbourhood and to the interests of the children and of education he would advise the Board to waive its objection as to the new site being within the prescribed distance from another school.—Mr. BIRRELL replied: The Commissioners of National Education inform me that their inspectors have reported that the existing schoolhouse at Barnmeen is unsuitable for school purposes, and the Commissioners are satisfied that steps ought to be taken to provide suitable accommodation. They are, however, by their rules precluded from making a grant except in special circumstances towards the erection of a new schoolhouse when there is a vested school within three miles of the proposed new school. In the present case there are two vested schools under the same manager within one and three-quarter miles of Barnmeen. In these circumstances the Commissioners have felt obliged to refuse the manager's application for a grant, and they see no sufficient reason for departing from that decision more especially as there are a large number of cases to be dealt with and available funds are limited.

THURSDAY, APRIL 11TH.

The Milk-supply in Egypt.

Dr. RUTHERFORD asked the Secretary of State for Foreign Affairs whether there were in Egypt any penal or other regulations intended to insure a pure milk-supply for human consumption or to prevent the adulteration of alimentary substances and liquids; and, if so, what were the number of prosecutions, convictions, and repeated convictions, and the penalties or other, and what, punishment imposed or inflicted in respect of breach of such regulations during the last five years.—Sir EDWARD GREY answered: I have no information on the subject, but I would point out that a serious obstacle to effective regulations of the nature described exists in the *régime* of the Capitulations.

The Mauritius Bacteriological Institute.

Mr. BOLAND asked the Under Secretary of State for the Colonies whether he could state when it was decided to create a bacteriological institute in Mauritius; also the actual date on which the director was appointed; and whether the director was now resident in Mauritius, or was he in Europe.—Mr. CHURCHILL replied: The establishment of such an institute was first approved in 1904 and the agreement with Dr. Lafont, who has been appointed director, was signed on Sept. 28th last. He is at present in Europe.

The Inspection of Underground Bakehouses.

Mr. WILKIE asked the Secretary of State for the Home Department whether the officers of the Factory Department had taken any samples of the air in underground bakehouses after long spells of work in these places; and whether assistant inspectors were forbidden to enter bakehouses where machinery was used.—Mr. GLADSTONE said: Air samples are taken at the discretion of the inspectors and no special instructions have been given as regards underground bakehouses. I am unable to say without further inquiry to what extent samples of air in these bakehouses have been taken by the inspectors, but I may, perhaps, remind the honourable Member that special provision with regard to the ventilation of underground bakehouses is made by the Factory Act, Section 101 of which prohibits the use of any underground bakehouse unless it has been certified by the district council to be suitable for the purpose as regards construction, light, ventilation, and in all other respects. As regards the last part of the question I would refer the honourable Member to the answer which I gave on Feb. 18th with regard to the new scheme of duties for factory inspector assistants.

Unsound Tinned Foods.

Mr. ALDEN asked the President of the Local Government Board whether he was aware that, according to the report of the medical officer of health of the City of London, tinned foods, consisting of left-over war stores from South Africa, were being continually put upon the market at low prices and sold to the poor of East and South London; that some of them had been dealt with as trade refuse by one of the borough councils; and whether, in view of these facts, he would cause special inquiry to be made with regard to the distribution and sale of these doubtful stores.—Mr. BURNS answered: I understand that the medical officer of health for the City has made a report on this subject and I have asked for a copy of it. I believe, however, that the facts are generally as stated in the question. I have for some months past endeavoured to ascertain all the available facts as to the importation and distribution of the foods referred to, and as far as practicable to prevent their reaching the public when they have been unsound or dangerous. As I have, however, stated on previous occasions, further legislation of the kind contemplated by the Public Health Regulations as to Food Bill now before the House is necessary to enable a matter of this kind to be dealt with effectively.

Butter Prosecutions in Bath.

Mr. NUTTALL asked the honourable Member for South Somerset, as representing the President of the Board of Agriculture, whether his attention had been drawn to the conviction of certain butter merchants at Bath on March 20th who were fined £50 and costs for selling butter alleged to contain 16·4 per cent. of water, whilst the analysis made at the Government laboratory showed only 15·62 per cent. of water, or 0·18 per cent. less than the presumptive limit of the Board of Agriculture; whether he was aware that the Government analyst stated that the difference between his own percentages and those of the prosecution might be largely accounted for, if not entirely, by the process of evaporation; and whether, seeing that the Government analyst corroborated the analysis of the prosecution by a statement founded on mere surmise, when his own analysis showed that the legal limit had not been exceeded, he proposed to take any action in the matter.—Sir EDWARD STRACHEY replied: The answer to the first two parts of my honourable friend's question is in the affirmative. With regard to the third part, I may say that notice of appeal against the decision of the magistrates has been given, but that in any case the Board of Agriculture has no authority to interfere.

The Japanese Pharmacopœia.

Mr. CLARKE asked the Secretary of State for Foreign Affairs whether he was aware that in consequence of the publication of a new edition of the Japanese Pharmacopœia and the proposed enforcement of the standards of that work upon imports of chemicals and drugs into the Japanese Empire on and after July 1st, 1907, manufacturers and merchants of Great Britain were being put to trade inconvenience and loss, as the Pharmacopœia was only obtainable in the Japanese language, and no official translation of it in a European or classic language was available; and would he take steps to secure the postponement of the importation order until such period as the English translation of the Pharmacopœia had been published and the new standards were in consequence known to manufacturers and merchants in this country.—Sir EDWARD GREY wrote in reply: My attention has already been drawn to this matter and inquiries will be made at Tokio. Should the facts be as stated, His Majesty's *chargé d'affaires* will be instructed to ask the Japanese Government to allow an extension of time.

Snake Bite in India.

Sir WILLIAM COLLINS asked the Secretary of State for India what had been the total number of deaths and the death-rates per 1,000,000 living from snake poisoning in India for each year for the last 30 years; and what measures, curative or preventive, were provided or encouraged by the Government of India with a view to reduce the mortality from snake venom.—Mr. MORLEY (by written answer) replied: The reported number of deaths and the death-rate from snake-bite in India during each of the last 30 years are as follows:—

[The figures were then given, commencing with 1876. From 1901 they are as follows:]

Year.	Number of deaths from snake-poisoning.	Population according to last Census.	Death-rate per 1,000,000 living.
1901 ...	22,810	231,899,507	98·4
1902 ...	23,167		99·9
1903 ...	21,827		94·1
1904 ...	21,880		94·3
1905 ...	21,797		94·0

The returns are probably not very accurate, as they are based on unskilled diagnosis. Rewards are offered in most provinces for the destruction of snakes, but experience has shown that this measure is not likely to have any appreciable effect on the mortality from snake-bite, and the total amounts so paid are small. The medical officers employed at the research laboratories in India are engaged in investigating and testing the antivenomous sera or other curative agents which have been suggested, and a system of treatment of affected persons by permanganate of potash, suggested by Sir Lauder Brunton, is being tried in some provinces.

MONDAY, APRIL 15TH.

Meat Inspection in Scotland.

Mr. HENRY ANDERSON WATT asked the Secretary for Scotland whether he would exercise the power contained in Section 8 of The Public Health (Scotland) Act, 1897, by appointing a commissioner with practical experience in meat inspection, preferably a veterinary surgeon in connexion with the inquiry at present being conducted by Dr. Dittmar into the methods of meat inspection practised by the officers of the different local authorities.—Mr. SINCLAIR answered: The Local Government Board does not consider it necessary to associate another commissioner with Dr. Dittmar, whose inquiry will shortly be completed.

The Vaccination Order.

Mr. LUPTON asked the President of the Local Government Board whether the Local Government Board Order of Oct. 18th, 1898, Third Schedule, Section No. 7, which stated that in all ordinary cases of primary vaccination the total area of vesiculation resulting from the vaccination should not be less than half a square inch, was still in force.—Mr. JOHN BURNS replied: The instruction in the Order is still in force and the medical advisers of the Local Government Board do not recommend that it should be altered. They have not come to any conclusions in this matter opposed to the views expressed in paragraphs 294, 295, and 297 of the Final Report of the Royal Commission on Vaccination.

The Notification of Pulmonary Tuberculosis.

Sir FRANCIS CHANNING asked the President of the Local Government Board whether he had now received and considered the statement of the Kettering urban council and the report of its medical officer in support of its resolution, under Section 7 of the Infectious Disease (Notification) Act, 1889, to apply that Act to phthisis.—Mr. JOHN BURNS answered: I have received the statement of the district council and the report of the medical officer of health referred to. They have only reached me within the last few days and they are now under consideration.

Sir FRANCIS CHANNING further asked the President of the Local Government Board whether he had obtained authoritative reports of the working of the compulsory notification of phthisis under the provisions of private Acts in the county boroughs of Bolton and Sheffield; whether such reports showed the system to be working satisfactorily and without serious objection; whether he had obtained, from or through the Local Government Board for Scotland, reports as to the working of compulsory notification of phthisis in Edinburgh, Glasgow, and other Scottish towns in pursuance of orders approved by that Board on the express ground that phthisis was now regarded as infectious; and whether such reports showed that this system was working satisfactorily and without serious objection.—Mr. JOHN BURNS replied: There have been statements in the annual reports of the Bolton and Sheffield medical officers of health on this subject, but I am not aware that any authoritative reports have otherwise been made with regard to it. Nor have I received any report from or through the Scotch Local Government Board as to the working of the compulsory notification of phthisis in any towns in Scotland. Dr. Bulstrode, one of the medical inspectors of the Local Government Board, has, however, for some time past been engaged on an inquiry as to the phthisis sanatoria in England and Wales, and incidentally he has acquired much information as to the working both of voluntary and of compulsory notification of pulmonary phthisis. This information he is embodying in a report which is now in the press.

The Inspection of Dairies.

Mr. H. H. MARKS asked the President of the Local Government Board what was the number of the local authorities to which the tuberculosis circular of the Board of March 11th, 1899, adverting to the Report of the Royal Commission on Tuberculosis and inclosing copies of model regulations for the control and inspection of dairies, was sent, and how many of such authorities had since made regulations or revised existing regulations in accordance with the views expressed by the Board in the circular. The honourable Member further asked whether, in view of the possible danger to the public from the sale of tuberculous milk, the Local Government Board had any power to compel a local authority, within the meaning of the Dairy, Cowsheds, and Milkshops Order of 1885, to make regulations for the inspection of cattle in dairies contemplated by Article 13 of the Order, and if there were any, and, if so, how many, local authorities in England and Wales which up to the present had made no such regulations.—Mr. JOHN BURNS, in reply to both questions, said: I have no power to compel the making of regulations under Article 13 of the Dairies, Cowsheds, and Milkshops Order, but regulations under the article are in force in all except about 340 out of some 1800 urban and rural districts. The precise figures will appear in a return now in preparation. The regulations usually contain an article as to the inspection of cattle in dairies. The circular of March 11th, 1899, was sent to the councils of all urban and rural districts. Regulations under the Order have since been made by 906 of these councils and they have generally been based on the model regulations issued by the Local Government Board.

The Destruction of Snakes in India.

In answer to a question by Mr. REES, Mr. JOHN MORLEY wrote: Rewards for the destruction of snakes are not offered by the Government of India, but local governments are authorised to offer them to such extent as they think fit.

TUESDAY, APRIL 16TH.

Charges for Death Certificates.

Mr. SUMMERBELL asked the President of the Local Government Board whether his attention had been called to the charge (*3s. 7d.*) made for death certificates by the relieving officer and collector of the Shardlow Union; and, if so, whether it was his intention to take any action having for its object the fixing of a smaller charge for such certificates.—Mr. JOHN BURNS replied: One of the relieving officers of the Shardlow Union is also registrar of births and deaths and it is in the latter capacity that he has issued certificates of death when required. I understand that in no case has he charged the higher fee than that authorised. The charges in connexion with certificates of death are statutory and I am not empowered to alter them.

Removals to Infirmaries.

Mr. SUMMERBELL asked the President of the Local Government Board whether he was aware that evidence was given at the inquest held at Poplar on April 9th on a poor woman named Baker, aged 81, who was ordered by the parish doctor to be removed to the sick asylum, to the effect that this removal was effected by two officers or servants of the guardians of the Stepney Union who were both drunk; that the daughter protested against the removal of her mother by men in such a condition; that the men dropped the old woman on the pavement; that when they arrived at the asylum the ambulance was kept 20 minutes before the sick woman could be taken out, as the driver of the ambulance could not find the key; would he say whether the medical officer or the relieving officer was responsible for the safe and proper removal of sick persons for indoor relief; and if so, whether he would recommend to the Stepney guardians that when aged people in grave sickness were removed from their own homes the guardians should send a doctor or nurse to supervise the removal.—Mr. JOHN BURNS said in answer: The case to which my honourable friend refers is, I think, that of a woman named Lewis. I have seen the depositions taken at the inquest in that case, which show that the facts are substantially as stated by him. I understand that the guardians have taken some action in this matter, but I am making further investigations with regard to it. As regards the point referred to in the last part of the question, the clerk to the guardians informs me that in cases of removal to the infirmary or sick asylum where no female friend or relative can accompany the patient the relieving officer and the medical officer are empowered to engage the services of a female attendant to be present at the removal. In this instance two daughters accompanied the patient.

Plumbism in Dockyards.

Mr. BRAMSDON asked the Secretary of State for the Home Department whether the factory and workshop regulations made by him on Jan. 21st last in respect of dangerous and unhealthy industries, which did not apply to factories and workshops in which paints and colours were manufactured, not for sale, but solely for use in the business of the occupier, applied to the Royal dockyards; and, if not, whether he would explain why this was so, and arrange that all Government workshops should be included, and the workmen so employed receive the benefit of these regulations which materially affected their lives and health.—Mr. GLADSTONE answered: The regulations do not apply to the Royal dockyards. Places in which the manufacture of paints is carried on only as ancillary to the main business of the factory were not included in the rules because the same danger to the worker is not found to exist in those places as in places where the manufacture is carried on for sale as the business of the factory. Nearly all the cases of plumbism reported from dockyards occur to men engaged in using the mixed paints or in scraping off old paint in confined spaces, such as the double bottom of ships, and to these processes the paint and colour regulations do not apply. Any danger, however, that might be caused to the workers employed in the dockyards in the making of paints by the inhalation of poisonous dust can be dealt with adequately by ordinary administrative action under Section 74 of the Factory Act, and such action will be taken wherever necessary.

Accidents in Carnarvonshire Quarries.

Answering Mr. ELLIS DAVIES, Mr. GLADSTONE said that the statistics for 1906 would show a very great decrease in the death-rate for the Carnarvonshire slate quarries, only one fatal accident having occurred at them during the year. The conditions existing at these quarries were receiving special attention from the inspectors, and he had called for a further report from them on the subject of accidents.

The Sanitation of Kingston Barracks.

In answer to two questions put by Mr. HICKS BEACH, Mr. HALDANE wrote: The drainage of Kingston-on-Thames barracks is at present under reconstruction and as part of that reconstruction the whole of the latrines, urinals, &c., used by the troops will in future be in accordance with modern sanitation.

WEDNESDAY, APRIL 17TH.

The Medical Attendants to the Royal Irish Constabulary.

Mr. SLOAN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the staff of medical attendants in Belfast was reduced from five to four, while the strength of the Belfast constabulary had substantially increased; would he state how many of the four medical attendants resided within their districts; whether he was aware that in Cork city the police medical attendant for the northern portion of the city lived on the south side, and the medical attendant for the south side lived on the north side; would he say if the surgeon to the force exercised any supervision over the medical attendants to the Royal Irish Constabulary all over Ireland; and, seeing that the police themselves paid these attendants a gross sum of about £10,000 a year out of their salaries, whether he would arrange that they should have some voice in their selection.—Mr. BIRRELL replied: In 1904 the number of medical attendants upon the police in Belfast was reduced from five to four upon a redistribution of stations in the city. Formerly there were but two medical attendants in Belfast. Three out of the four reside within their districts. In the remaining case this is not possible. The fact as to the places of residence of the medical attendants for Cork is as stated in the question. The surgeon to the force who is attached to the depôt does not exercise supervision over the medical attendants throughout the country. The cost of medical attendance on the constabulary is not provided by the men but is borne on the votes. In the circumstances there do not appear to be any grounds for giving the men a voice in the selection of their medical attendants.

BOOKS, ETC., RECEIVED.

AMERICAN ECCLESIASTICAL REVIEW, The Dolphin Press, 1305, Arch-street, Philadelphia, Pa., U.S.A.

Catholic Churchmen in Science. Sketches of the Lives of Catholic Ecclesiastics who were among the great Founders in Science. By James J. Walsh, M.D., Ph.D., LL.D., Professor of Medical History, Fordham Univ. Med. School, and Professor of Physiological Psychology in St. Francis Xavier's College, N.Y. Price $1.00 net. Post paid $1.08.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Manual of Anatomy. Systematic and Practical, including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Glasg., Professor of Anatomy in Anderson's College, Glasgow; Examiner in Anatomy for the Triple Qualification of the Scottish Licensing Bodies. Vol. II. Price 12*s.* 6*d.* net.

BERGMANN, J. F., Wiesbaden. (F. BAUERMEISTER, Glasgow.)

Die Zandersche Mechanische Heilgymnastik und ihre Anwendung bei Inneren Krankheiten. Von Dr. Karl Hasebrock, Dirigierender Arzt des Hamburger Mediko-Mechan. Zanderinstitutes (Ad. Gramcko and Sohn). Price M. 2.20, or 2*s.* 6*d.*

Kristallisation, Fermentation, Zelle und Leben. Eine biologisch-philosophische Studie. Von Dr. E. Krompecher, Privatdozent für pathologische Histologie und Bakteriologie. (Aus dem patholog.-anat. Institute Nr. 11 der königl. ung. Universität zu Budapest. Dir: Prof. Dr. O. Pertik.) Price M. 2.40, or 2*s.* 9*d.*

Ergebnisse der Experimentellen Pathologie und Therapie, einschliesslich Pharmakologie. Herausgegeben von Prof. Baccelli, Geh. Med.-Rat Ebstein, Geh. Med.-Rat Ehrlich, Prof. Levaditi,

Prof. Osler, Prof. Pawlow, Prof. Ribbert, Geh. Med.-Rat Schmiedeberg, Prof. Verworn, Geh. Med.-Rat Senator, Prof. Wright und Prof. Welch. Redigiert von Dr. med. E. Schreiber, Oberarzt in Magdeburg. I. Band. 1. Abteilung. Price M. 2.80, or 3s.

Handbuch der Gynäkologie. Herausgegeben von J. Veit, Halle. Zweite völlig umgearbeitete Auflage. Erster Band. Price M. 16.60, or 16s. 9d.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, and Melbourne.

First Lines in Midwifery. A Guide to Attendance on Natural Labour for Medical Students and Midwives. By G. Ernest Herman, M.B. Lond., F.R.C.P., Consulting Obstetric Physician to the London Hospital. New edition. Price 5s.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

Text-book of Anatomy for Nurses. By Elizabeth R. Bundy, M.D., Member of the Medical Staff of the Woman's Hospital of Philadelphia; Gynecologist, New Jersey Training School, Vineland. Price 7s. 6d. net.

COLLINGRIDGE, W. H., AND L., "City Press" Office, Aldersgate-street, London, E.C.

The City of London Directory for 1907. The Thirty-seventh Annual Edition. Price 12s. 6d.

DOIN, OCTAVE, 8, Place de l'Odéon, Paris.

Le Microorganisme de la Syphilis: Treponema Pallidum (Schaudinn). Par le Dr. Lévy-Bing, Chef de Laboratoire de Saint-Lazare, Lauréat de la Faculté de Médecine (Encyclopédie Scientifique, publiée sous la Direction du Dr. Toulouse.) Price Fr 5.

Thérapeutique des Maladies due Système Nerveux. Par la Docteur J. Grasset, Professeur de Clinique Médicale à l'Université de Montpellier, Associé National de l'Academie de Médecine (Encyclopédie Scientifique). Price Fr. 5.

DORMAN, WILLIAM J., Philadelphia.

Transactions of the American Surgical Association. Volume the Twenty-fourth. Edited by Richard H. Harte, M.D., Recorder of the Association. Price not stated.

F. A. DAVIS COMPANY, 1914-16, Cherry-street, Philadelphia, Pa., U.S.A.

Psychology Applied to Medicine. Introductory Studies. By David W. Wells, M.D., Lecturer on Mental Physiology, and Assistant in Ophthalmology, Boston University Medical School. Price $1.50 net.

Text-book of Psychiatry. A Psychological Study of Insanity. For Practitioners and Students. By Dr. E. Mendel, A.O. Professor in the University of Berlin. Authorised Translation. Edited and enlarged by William C. Krauss, M.D., Buffalo, N.Y. Price $2.00 net.

FISCHER, GUSTAV, Jena.

Handbuch der Pathogenen Mikroorganismen. Herausgegeben von Prof. Dr. W. Kolle, Berne, und Prof. Dr. A. Wassermann, Berlin. Erster Ergänzungsband. Price M.28; geb., M.30.50.

Weitere psychiatrische Beobachtungen an Militärgefangenen mit klinischen, kriminalpsychologischen und praktischen Ergebnissen aus dem Gesamtmaterial von 100 Fällen. Von Ernst Schultze, Greifswald. Price M.3.

Über die körperlichen Ausserungen psychischer Zustände. Weitere experimentelle Beiträge zur Lehre von der Blutzirkulation in der Schädelhöhle des Menschen. Von Dr. Hans Berger, Privatdozent der Psychiatrie an der Universität Jena. Preis, für Text and Atlas, M.40. (First part issued in 1904. Second part just issued).

G. P. PUTNAM'S SONS, New York and London.

Alcohol: The Sanction for its Use. Scientifically Established and Popularly Expounded by a Physiologist. Translated from the German of Dr. J. Starke. Price not stated.

The Muscles of the Eye. By Lucien Howe, M.A., M.D., Professor of Ophthalmology, University of Buffalo, Member of the Royal College of Surgeons of England. In two volumes. Volume I., Anatomy and Physiology, including Instruments for Testing and Methods of Measurement. Price of each volume, separately, $4.25 net; of both volumes if ordered before July 1st, 1907, $7.50 net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Practical Physiological Chemistry. By J. A. Milroy, M.A., M.D., Demonstrator of Physiology, Queen's College, Belfast, and T. H. Milroy, M.D., B.Sc., F.R.S.E., Professor of Physiology, Queen's College, Belfast. Second edition. Price 5s. net.

HEINEMANN, WILLIAM, London.

Metabolism and Practical Medicine. By Carl von Noorden, Professor of the First University Medical Clinic, Vienna. Vol. I.: The Physiology of Metabolism. By Adolf Magnus-Levy, Berlin. Vol. II.: The Pathology of Metabolism. By Carl von Noorden, Fr. Kraus, Ad. Schmidt, W. Weintraud, M. Matthes, and H. Strauss. English Issue under the Editorship of I. Walker Hall, Professor of Pathology, University College, Bristol. In three volumes. Price £2 12s. 6d. net.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Zeitschrift für Krebsforschung. Herausgegeben vom Zentralkomitee für Krebsforschung zu Berlin. Redigiert von Prof. Dr. D. v. Hansemann und Prof. Dr. George Meyer. Fünfter Band. Erstes und Zweites Heft. Verhandlungen der Internationalen Konferenz für Krebsforschung vom 25-27 September, 1906. Price M.8.

KIMPTON, HENRY, London and Glasgow.

A Text-book of the Practice of Medicine. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. Second edition, revised and enlarged. Price 21s. net.

KLINKHARDT, Dr. WERNER, Liebigstrasse, 2, Leipzig.

Zur Lehre von der Zwillingsschwangerschaft mit heterotopem Sitz der Früchte, das eine Ei cavo uteri das andere extrauterin gelagert. Kasuistik von 171 Fällen nebst zwei eigenen Beobachtungen. Mitgeteilt von Fr. v. Neugebauer, Warschau. Price M. 6.

LEWIS, H. K., 136, Gower-street, London, W.C.

Police-Surgeon's Emergency Guide. By C. Graham Grant, L.R.C.P. & S. Edin., Divisional Surgeon H and Thames Divisions, Metropolitan Police, Surgeon, Poplar Hospital, &c. Price 2s.

LONGMANS AND CO., London; B. QUARITCH, London; DULAU AND CO., London; and BRITISH MUSEUM (Natural History), London.

A Monograph of the Culicidæ or Mosquitoes. Mainly compiled from Collections received at the British Museum. By Fred. V. Theobald, M.A., Officer of the Imperial Order of the Osmanie, Vice-Principal and Zoologist of the South-Eastern Agricultural College. Vol. IV. Price £1 12s. 6d.

MACLEHOSE, JAMES AND SONS, 61, St. Vincent-street, Glasgow.

Eye Injuries and their Treatment. By A. Maitland Ramsay, M.D., Fellow of Faculty of Physicians and Surgeons, Glasgow, Ophthalmic Surgeon, Glasgow Royal Infirmary, Professor of Ophthalmology, St. Mungo's College. Price 18s. net.

MACMILLAN AND CO., LIMITED, London.

Archives of Neurology from the Pathological Laboratory of the London County Asylums, Claybury, Essex. Edited by Frederick Walker Mott, F.R.S., M.D., F.R.C.P., Director of the Laboratory and Pathologist to the London County Asylums; Physician to Charing Cross Hospital. Vol. III. Price not stated.

SPOTTISWOODE AND CO., LIMITED, 54, Gracechurch-street, London, E.C.

The Dentists Register: Printed and Published under the Direction of the General Council of Medical Education and Registration of the United Kingdom, pursuant to an Act passed in the Year XLI. and XLII. Victoriæ, Cap. XXXIII., entitled an Act to Amend the Law Relating to Dental Practitioners. 1907. Price 3s. 4d.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Traitement Chirurgical du Cancer du Colon. Par le Dr. Joseph Okinczyc, Prosecteur à la Faculté de Médecine, Ancien Interne Lauréat des Hôpitaux (Medaille d'Or, 1906). Price not stated.

UNIVERSITY OF CHICAGO PRESS, Chicago. (T. FISHER UNWIN, London.)

Sex and Society. Studies in the Social Psychology of Sex. By William I. Thomas, Associate Professor of Sociology in the University of Chicago. Price 6s. 6d. net.

UNIVERSITY PRESS (PONSONBY AND GIBBS), Dublin.

The Royal University of Ireland. Examination Papers, 1906. A Supplement to the University Calendar. For the Year 1907. Price not stated.

UNIVERSITY PRESS, Manchester. (SHERRATT AND HUGHES, London.)

A Comparative Study of the Influence of Cod-liver Oil, and Cod-liver Oil Emulsion, upon the Nutrition of Normal and Tuberculous Pigs. By J. W. Wells, M.D., D.P.H., F.C.S. Price 2s. 6d. net.

W. B. SAUNDERS COMPANY, Philadelphia and London.

A Text-book of Diseases of Women. By J. Clarence Webster, B.A., M.D. Edin., F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynæcology in Rush Medical College, in Affiliation with the University of Chicago. Price 30s. net.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Assistant Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Price 15s. net.

Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital and Consulting Surgeon to St. Joseph's Hospital, Philadelphia. Fifth edition, thoroughly revised and enlarged. Price 24s. net.

WILEY, JOHN, AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)

The Value of Pure Water. By George C. Whipple. First Edition. First Thousand. Price, cloth, $1.00 (4s. 6d. net).

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication.*

CREERAR, R., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cromarty District of the county of Ross and Cromarty.

DOBIE, CYRIL, M.B., M.S. Edin., has been appointed Honorary Assistant Surgeon to the Chester Infirmary.

GOMES, SIDNEY, F.R.C.S. Edin., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

HAMILTON, A. DOUGLAS, has been appointed Honorary Assistant Physician to the Chester Infirmary.

KELLY, CHARLES ERNEST MACKENZIE, M.D., M.S. Lond., F.R.C.S. Eng., has been appointed Medical Officer and Public Vaccinator to the Witney District and Workhouse.

MARTIN, ANTONY ALEXANDER, M.D. Lond., B.S., M.R.C.S., L.R.C.P. Lond., D.P.H. Lond., has been appointed Honorary Assistant Medical Officer to the Princess Alice Memorial Hospital, Eastbourne.

MAYOU, M. STEPHEN, F.R.C.S. Eng., has been appointed Assistant Surgeon to the Central London Ophthalmic Hospital.

ROBERTS, GEORGE A., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal Albert Hospital, Devonport.

ROGERS, R. S., M.D. Edin., has been appointed a Visitor to the Parkside Lunatic Asylum, South Australia.

ROMER, R. I., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Stanmore District of the county of Middlesex.

STACK, EDWARD HUGH EDWARDS, M.B., B.C. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Assistant Surgeon to the Bristol Eye Dispensary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALNWICK INFIRMARY.—House Surgeon, unmarried. Salary £120 per annum, with apartments, attendance, coals, and gas.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and residence. Also House Physician, unmarried. Salary £100 per annum, with board and residence.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon. Salary £50 per annum, with board, residence, and washing.

BRISTOL COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon and Resident Medical Officer. Salary £100 per annum, with board, apartments, and laundry.

BRISTOL GENERAL HOSPITAL.—House Surgeon, House Physician, Casualty House Surgeon, and Assistant House Physician. Salary £60, with board, residence, &c., in each case.

BURY INFIRMARY.—Junior House Surgeon. Salary £80, increasing to £90, with board, residence, and attendance.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—House Surgeon for six months, renewable. Salary at rate of £60 per annum, with board, washing, and apartments.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CHELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge of the Branch Dispensary, unmarried. Salary £90 per annum, with board and lodging. Also House Physician, unmarried. Salary £70 per annum, with board and lodging.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Junior House Surgeon. Salary £60 a year, with board, apartments, and laundress.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon for six months. Salary £60 per annum, with rooms, board, washing, and attendance.

DERBY, COUNTY BOROUGH ISOLATION HOSPITAL.—Assistant to the Medical Officer of Health. Salary £120 per annum, with board and lodging.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, and laundry.

EDINBURGH PROVINCIAL COMMITTEE FOR THE TRAINING OF TEACHERS.—Lecturer on School Hygiene and Medical Officer. Salary at rate of £400 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—Assistant Surgeon.

GLOUCESTER, GENERAL INFIRMARY AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant Surgeon on the Acting Medical Staff.

GREAT NORTHERN CENTRAL HOSPITAL, N.—Surgeon to the Ear and Throat Department.

HULL ROYAL INFIRMARY.—Honorary Surgeon.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

INVERNESS DISTRICT ASYLUM.—Junior Assistant Medical Officer. Salary £100 per annum, with board, lodging, and laundry.

JOHANNESBURG HOSPITAL.—House Physicians and House Surgeon, unmarried. Salaries at rate of £300 per annum, with board and lodging.

LEEDS GENERAL INFIRMARY.—House Physician, also Ophthalmic House Surgeon.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary £25, with board, residence, and washing.

LIVERPOOL STANLEY HOSPITAL.—House Surgeon.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Third Anæsthetist.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon and Anæsthetist, unmarried. Salary £90, with board, lodging, and washing.

MANCHESTER, ANCOATS HOSPITAL.—Honorary Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer for the Crossley Sanatorium, Delamere Forest. Salary £100 per annum, with board, apartments, and laundry.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Fourth House Surgeon for six months. Honorarium of £25, with board and residence.

MENSTON, NEAR LEEDS, WEST RIDING ASYLUM.—Fourth Assistant Medical Officer. Salary £150, rising to £180, with board and apartments.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Assistant Resident Medical Officer at Northwood. Salary £50 per annum, with board, lodging, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Assistant Ophthalmic Surgeon.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Director for the Bacteriological Laboratory. Salary £100 per annum.

ROYAL EAR HOSPITAL, Dean-street, Soho, W.—House Surgeon for six months. Salary at rate of £40 per annum.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Casualty House Surgeon for six months. Board, &c., provided.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—House Surgeon. Honorarium £25 for six months.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum all found.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants. Fee £3 3s. per quarter.

SOCIETY OF APOTHECARIES OF LONDON.—Examiners in Medicine, Surgery, Midwifery, Anatomy, and Materia Medica.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

THROAT HOSPITAL, Golden-square, W.—House Surgeon. Salary £50 per annum, with board, residence, and laundry.

TOTTENHAM HOSPITAL, London, N.—House Surgeon, House Physician, Junior House Surgeon, and Junior House Physician, all for six months. Salary of two former at rate of £75 per annum, and of two latter at rate of £40 per annum, with residence, board, and laundry.

WAKEFIELD, WEST RIDING ASYLUM.—Pathologist and Assistant Medical Officer. Salary £140, with board, apartments, washing, and attendance.

WARRINGTON, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £450 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, London, W.—Honorary Assistant Physician.

WEST HARTLEPOOL, CAMERON HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, rooms, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Ophthalmic Surgeon. Also Officer-in-Charge of X-Ray Department.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £80 per year, with board, apartments, and washing.

WINCHESTER, ROYAL HANTS COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £65, rising to £75, with board, residence, &c. Also Honorary Physician in Ordinary.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Ystalyfera, in the county of Glamorgan; and at Fillongley, in the county of Warwick.

Births, Marriages, and Deaths.

BIRTHS.

STEELE.—On April 11th, at Sydney House, Chiswick, W., the wife of Charles Francis Steele, M.B. Lond., M.R.C.S. Eng., of a daughter.

WALKER.—On April 8th, at Quetta, Baluchistan, the wife of Captain Norman Dunbar Walker, R.A.M.C., of a daughter.

WARREN.—On Tuesday, April 16th, at 15, Lansdown-crescent, W., the wife of Alfred C. Warren, M.A., M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

CROSBIE—CROSBIE.—On April 11th, at St. Finian's, Greencastle, Pierce Leslie Crosbie, F.R.C.S., R.N., to Winifred, fourth daughter of the late Pierce Crosbie Esq., J.P., Greencastle, county Donegal.

NITCH—BRYDEN.—On April 10th, at St. Barnabas, Addison-road, Cyril A. R. Nitch, M.S., F.R.C.S., to Amy Annie, elder daughter of the late Surgeon-Major J. L. Bryden, M.D., I.M.S., and of Mrs. Bryden.

PIRIE—DUNCAN.—At the West Parish Church, Aberdeen, on the 10th inst., by the Rev. Andrew Brown, M.A., William Rattray Pirie, M.A., M.B., C.M. Aberd., to Margaret Duncan, M.B., Ch.B. Aberd.

DEATH.

ASTLEY.—On April 12th, at Marine-parade, Dover, Edward Ferrand Astley, M.D., J.P., in his 96th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"WINCARNIS."

To the Editors of THE LANCET.

SIRS,—I notice in recent newspaper advertisements that "Wincarnis" has been "tested, endorsed, and recommended by over 8000 distinguished medical men" and that it "exalts the energies, raises the vital status, strengthens the nerves, enriches the blood, and quickens the circulation." It might be advantageous to many members of the profession, whether distinguished or not, if you would kindly give some information as to the accuracy of these statements, and state if, in your opinion, they are justified in fact.

I am, Sirs, yours faithfully,

April 4th, 1907. IN VINO VERITAS.

*** For the benefit of our readers we give below the results of an analysis recently made in THE LANCET Laboratory of a sample of "Wincarnis" purchased in the open market. In a parallel column are the results of an analysis of a sound port wine.

	Wincarnis.		Sound port wine.
Alcohol by weight	14·82 per cent.		18·08 per cent.
,, volume	18·25 ,,		22·18 ,,
Proof spirit	31·99 ,,		38·87 ,,
Extractives	20·87 ,,		8·90 ,,
Sugar	18·68 ,,		7·13 ,,
Mineral matter	0·37 ,,		0·15 ,,
Glycerin	0·12 ,,		0·56 ,,
Tannin	0·24 ,,		0·17 ,,
Total nitrogen	0·12 ,,		0·0142 ,,
Volatile acid reckoned as acetic acid	*Nil.* ,,		0·09 ,,
Fixed acid reckoned as tartaric acid	0·68 ,,		0·30 ,,
Volatile ethers reckoned as ethyl acetate	0·019 ,,		0·049 ,,

These analyses show that the addition of meat and malt extract to Wincarnis results in a small dietetic gain as regards nitrogen or protein or the true nutritive principle of meat, while there is a great increase in the amount of sugar. The large amount of sugar in Wincarnis is a matter worthy of note by the physician.—ED. L.

A JACKETED JUG.

WE have received from Messrs. W. A. S. Benson and Co., of 82 and 83, New Bond-street, London, W., a jacketed jug which was originally designed for keeping beverages hot at railway stations and for travellers' use generally. It is pointed out to us that the same device should be of service in keeping milk or liquid foods clean and away from dust, while it will preserve them either hot or cold as may be desired. The importance of keeping milk below incubating temperature is obvious and the air jacket of this vessel effects the object admirably. It consists simply of an outer metal case in which the jug is placed. By means of wire projections the enamelled white jug is kept from contact with the container, and around it there is a uniform air space. Both the jug and the container are provided with lids. All parts may easily be detached and therefore cleaned.

A SHIRT FOR MEDICAL MEN.

AN ingenious form of shirt has been invented by Messrs. Desmond and Sons, of Claudy, Londonderry, specimens of which in white and colours have been sent to us for criticism. The shirts are good examples of haberdashery, thoroughly well made in suitable material, the novelty being that the garments are constructed with elbow-sleeves, to which there are attached by buttons short lower sleeves bearing the cuffs. Many of us have had the experience of hopelessly soiling our cuffs at the outset of the day, and that accident is particularly disagreeable to the practitioner whose appearance in the sick-room with obvious blood-stains upon his linen must lead to comment, and sometimes to a distinct feeling of annoyance on the part of the patient. But the practitioner may be on his rounds when the accident occurs and unable to change his shirt until he reaches home; or when at home he may be unable to spare the quarter of an hour necessary for a complete change of underclothing. But he can slip on a pair of clean short sleeves in two minutes and resume the creditable appearance which he had when leaving his bedroom in the morning. There are many forms of detachable or reversible cuff which aim at supplying the same convenience, but, in our opinion, the short sleeve designed by Messrs. Desmond and Sons is preferable to them in appearance. We also approve of the general shape of shirt adopted. The shirts open from the collar to the bottom of the skirt instead of only along the line of the front. This form of shirt, quite common in France, is easier to get on and to get off. The prices of the garments quoted to us are very reasonable.

A Practitioner.—The wards complained of have been abolished. There was no doubt in the minds of those responsible for the institution that the accommodation in question was bad and at the earliest opportunity reform was introduced. The physician to whom veiled reference is made happens to have taken a particularly strong stand in insisting upon the reform.

Mr. A. Quayle.—We do not know of any recent work in English on the subject mentioned by our correspondent. In fact, we doubt whether any has appeared since the book mentioned by him.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.). Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (27th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (22nd).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M.: Papers:—Mr. H. J. Waring: Some Surgical Affections of the Right Iliac Fossa which Simulate Appendicitis.—Mr. J. L. Thomas: A Series of Cases of Goitres removed under Anæsthesia.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M.: Council Meeting. 8 P.M.: Communication:—Mr. J. F. Colyer: Some Specimens recently presented to the Museum of the Society. Paper:—Dr. H. Simms: Some Observations on the Bacteriology of Pyorrhœa Alveolaris. (The Communication and Paper will be illustrated by lantern slides shown by means of the epidiascope.)

TUESDAY (23rd).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M.: Dr. O. Grünbaum: The Diagnosis of Addison's Disease. (Epidiascope demonstration.)

WEDNESDAY (24th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8 P.M. Annual Meeting. 8.30 P.M.: Adjourned Discussion on Epilepsy (opened by Dr. R. Russell). The following gentlemen will speak: Dr. W. S. Colman (Epilepsy in Children), Dr. A. Turner (Treatment of Epilepsy), Dr. H. Campbell (Diet in Epilepsy), Dr. C. H. Bond (Epileptic Colonies).

FRIDAY (26th).—BRITISH ELECTROTHERAPEUTIC SOCIETY (11, Chandos-street, Cavendish-square, W.).—8 P.M.: Council. 8.30 P.M.: Stereoscopes will be shown by Mr. C. A. Clark and Mr. A. D. Reid and a Simple Negative Viewer will be shown by Dr. G. B. Batten. Communication:—Dr. G. B. Batten: Simple Method of Epilating the Whole Scalp by Exposure to X Rays. Discussion on Dr. S. Sloan's Paper read at the meeting in February.

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M.: Clinical Evening for the Exhibition of Cases followed by Discussion. Patients in attendance from 8 to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Mr. Dunn: Diseases of the Eye.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M.: Lecture:—Mr. C. B. Keetley: Fractures and Dislocations of the Hip, especially Old and Unreduced Ones.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—9.30 A.M.: Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Medical Out-patient (Dr. Whipham), Throat, Nose, and Ear (Mr. Carson); X Ray (Dr. Pirie).

TUESDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. H. Mackenzie: Clinique. (Medical.) 5.15 P.M.: Lecture:—Mr. C. H. Leaf: Some Considerations regarding the Modern Operations for Cancer of the Breast.

NORTH-EAST LONDON POST GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—10.30 A.M.: Medical Out-patient (Dr. Auld). 2.30 P.M.: Fevers (Dr. F. Thomson at the North-Eastern Fever Hospital, St. Ann's-road, N.): Gynæcological Out-patient (Dr. Giles), Surgical Out-patient (Mr. Edmunds). Surgical Operations (Mr. Carson).

GENERAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration:—Dr. D. Grant: Methods of Examination.

WEDNESDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Dr. D. Robinson: Diseases of Women.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. P. J. Freyer: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. J. J. Perkins: Cyto-diagnosis (with lantern slides).

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—Cliniques:—2.30 P.M.: Skin (Dr. Meachen), Eye (Mr. Brooks), Medical Out-patient (Dr. Whipham).

THURSDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Mr. Dunn: Diseases of the Eye. Operations.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. B. Clarke: The Fundus Oculi in Health and Disease (with lantern slides).

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques.—Fevers (Dr. F. Thomson at the North-Eastern Fever Hospital, St. Ann's-road, N.), Medical Out-patient (Dr. Whiting), Surgical Out-patient (Mr. Carson). 3 P.M.: Medical In-patient (Dr. Chappel)

FRIDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. D. Grant: Clinique. (Ear.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld), Eye (Mr. Brooks). 3 P.M.: Medical In-patient (Dr. Leslie).

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration:—Dr. D. Grant: Methods of Examination.

SATURDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. Dr. D. Robinson: Diseases of Women.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 18th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 12	29·62	E.		62	51	43	44	45	Overcast
,, 13	29·47	S.	0·27	103	56	45	45	47	Cloudy
,, 14	29·65	N.E.	...	73	51	45	44	45	Overcast
,, 15	29·60	N.E.	...	86	54	42	42	44	Fine
,, 16	29·53	N.E.		69	56	42	42	43	Overcast
,, 17	29·64	N.E.	0·08	90	60	41	41	43	Cloudy
,, 18	29·99	N.	0·08	88	40	35	36	39	Fine

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